The Plough, the Loom, and the Anvil.

Vol. IV. NOVEMBER, 1851. No. 5.

FRAUDS OF THE ADVOCATES OF BRITISH MONOPOLY.

From the Washington Union.

The tariff clamor at the present moment seems to be more perseveringly kept up than usual; and the strange medleys written by Mr. Carey, of Philadelphia, are widely copied by papers not likely to work for nothing, showing a mysterious and interested agency in promulgating the views of capitalists. It is not, however, a matter of regret that Mr. Carey's articles are put forth as the best protective arguments, because they are so at variance with what every intelligent man knows to be true, that they produce a contrary effect; and as by the friends of protection they are admitted to be the best arguments in its favor, it follows that the system is indefensible. We may allude to only a few of the statements made by Mr. Carey, of which the falsity is not so conspicuous as the majority which the reader detects for himself as he goes along. Mr. Carey endeavors to run a parallel between the situation of affairs now and in 1836, to show that the modification of the tariff of 1842, like that of 1828, has ruined internal industry, induced people to buy and consume on credit, without producing anything to pay with. Thus:

"There was then a steady diminution in the amount of production. *So is it now.*

"There was then a steady rise in the price of the first necessaries of life, consequent upon diminished production. *So is it now.*

"There was then a stoppage of the growth of immigration, because of the diminished reward for labor. *So is it now.*"

Thus he proceeds to ring the changes, and his process is apparently to ascertain from old papers what was the state of things then, and to assert the same is the case now, without any regard to the fact. The point principally insisted upon is, that the production of commodities has declined in consequence of want of protection, and, as a consequence, railroads and canals do no business, and prices rise consequent upon diminished production. Now, as to production, we may first take the New-York canals, showing the tons of agricultural productions that arrived at tide-water on the Hudson, *via* the canals, in three periods of four years:—

	Tons.		Tariff of 1842. Tons.		Tariff of 1846. Tons.
1836,	173,000	1843,	346,140	1847,	897,717
1837,	151,468	1844,	378,714	1848,	685,896
1838,	182,142	1845,	447,627	1849,	769,600
1839,	163,785	1846,	628,454	1850,	926,048
Total 4 years,	690,395		1,800,935		3,279,261

The large receipts of 1846 and 1847 were the consequence of the short crops abroad; but the receipts of the last year of low prices were more than

double those of 1845. For the present year (1851) the receipts will be immensely larger than last year. Thus the receipts from the opening of navigation to the close of June have been as follows:—

	1850.	1851.	Increase.
Flour, bbls.,	633,420	1,151,906	518,486
Grain, bush.,	2,598,575	4,774,610	2,176,035
Butter, lbs.,	736,017	950,880	214,863
Lard, "	5,771,446	9,276,910	3,505,464
Bacon, "	7,157,647	9,074,973	1,917,326

Grain and flour have nearly doubled in quantity this year, and the exports from the United States to Great Britain alone have been:—

	Flour, bbls.	Wheat.
1850,	321,324	430,329
1851,	1,054,731	978,687
Increase,	733,407	548,358

With these facts ascertained, what a farce is it for Mr. Carey to assert that "production diminishes," and that there is not enough to export "in payment for cloth and iron!" But he further insists that the building of roads on credit is accompanied by a diminished trade. Thus, page 679:—

"Road-makers will then discover that while roads have been doubled in extent, the quantity of commodities to be transported has been reduced to a little more than one half, and that, with diminished immigration and emigration, the passenger business can contribute little towards dividends. * * * * All will then discover that competition has led to *doubling* the roads while *halving* the trade."

The railroads of New-England, being in the manufacturing districts, are those which are supposed to be most obnoxious to this disastrous influence of low duties. We will therefore take a table of their length, and the number of passengers and tons of freight they have transported:—

MASSACHUSETTS RAILROADS.

	Length, miles.	Passengers, number.	Freight, tons.	Net income, per mile of road.
1846,	545	3,990,318	1,329,944	81
1847,	691	5,556,576	1,769,332	79
1848,	846	7,293,777	1,958,331	85
1849,	992	8,742,579	2,167,757	100
1850,	1,053	8,856,656	2,219,050	99

The only truth in Mr. Carey's statement is, that the "extent is doubled." Instead of "*halving*," the passengers have increased 120 per cent., and the freight or "commodities to be transported" nearly doubled. Where such falsehoods as those of Mr. Carey go before a public who have not the means of testing them, what endless deception arises! It is in the deceptions so propagated that the whole strength of the protective theory exists.

But that which Mr. Carey affects most to deplore is the *decline of immigration* into the country. He remarks thus:—

"The necessary consequence of the diminished reward for labor is that immigration has become stationary, and must diminish as the necessaries of life rise in price with the increase of machine-making and diminution of production. From 1843 to 1847 it grew steadily, commencing with 75,000 and ending with 239,742. Every arrival brings with it advices that 'passengers are comparatively scarce, and considerably lower;' and thus as our power to produce commodities for export diminishes, there is a diminution, and that necessarily, of the inducement to foreigners to come and live among us, and make a market for our produce. * * * *

"Our import of men is now diminishing, and each successive arrival brings intelligence

of the increased difficulty of filling ships at lower rates, and this difficulty must continue to increase as the price of food shall rise with diminished production, &c.

"It [the tariff of 1846] seeks to sink our people to the level of those of Europe, and it destroys the inducements to Europeans to seek our shores, compelling them to remain slaves when they would become freemen."

As the simplest reply to these fabrications, we may give the official number which left Great Britain alone for the United States in six years:—

1842,	63,852
1846,	82,239
1847,	142,154
1848,	108,283
1849,	219,450
1850,	223,078

Thus, in the last year, *three times* the number came here from the British islands that came in the highest year of the tariff of 1842; and in the present year the number of arrivals at New-York alone has been *one thousand per day*—say, 150,000 since January 1. If immigration is a sign of large remuneration for labor annually, that blessing is indisputable. But what are we to think of Mr. Carey, who writes, and of the *Tribune*, which publishes, such fabrications as those which I have quoted, and which are designed to cheat the public into the adoption of measures of public policy which cannot be supported with truth?

It follows that if every test which Mr. Carey applies as evidence of the ruin of the country is precisely the reverse of the fact, then the country must be in a state of unparalleled prosperity; and this, without much exaggeration, may be assumed to be the case. The country is full of natural wealth, and is possessed of great facilities for reaching market at a moment when the European markets are opening for their reception. The recent accounts of a rapid rise in breadstuffs in France has imparted much activity to shipments here, and a rise in the price of the vast quantities coming down the canals, the Mississippi river, and every avenue of trade, will add probably fifty millions to the payments from the country to the seaboard, and produce an abundance of money, and a demand for goods never before witnessed. The flour, pork, corn, cotton, and gold, with which we can supply the world, are guarantees against any very decided manifestations of ruin for the present. The supply of the precious metals has far less to do with the abundance of money than is generally supposed. It is only one product of industry, when every product has as much purchasing power as gold. The receipt of 100 bbls. of flour in New-York pays a debt for $400 as effectually as 25 ounces of gold; and when, throughout the whole extent of the country, rail cars and canal boats are seen loaded with freight, pressing forward to supply an increasing demand at home and abroad, no serious fears of an immediate revulsion need be indulged.

We take the above from the Washington *Union*, a journal whose articles we have repeatedly copied, desiring to exhibit to our readers the sort of arguments used by the advocates of the system by aid of which Great Britain seeks to compel the planters and farmers of the world to make all their exchanges in her markets, and thus enable her to retain a monopoly of the manufactures and commerce of the world. On each and every such occasion we have invited our contemporary to publish our replies, pledging ourselves in return to publish his rejoinders; but thus far the invitation has invariably been declined, it being a rule with the advocates of British policy throughout this country not to permit their readers to see more than one side of this great question. In this they are certainly wise, for were the farmers and planters once permitted to understand

the extent to which they are taxed for the maintenance of British fleets and armies, there would be exhibited from one extremity of the Union to the other a determination to throw off the colonial vassalage in which we have to this time been retained, far more universal, as we believe, than that manifested in the days when our forefathers destroyed the British stamps and discharged the cargoes of tea into the harbor of Boston. That that determination does not now exist is due to the fact that so large a portion of the journals of the country are united in the effort to satisfy their agricultural readers that the true way to become rich is to exhaust their land by raising commodities to be consumed at a distance, and then to fly from the land itself, to perform elsewhere the work of exhaustion already so well commenced in most of the older States of the Union. Great, however, is truth, and *it will prevail.* The day cannot, we feel assured, be far distant when the eyes of both farmers and planters will be opened to the fact, that if they would be happy and rich, and if they would desire to see the nation independent and powerful, the road to the accomplishment of these great objects lies through that perfect protection which will enable them to make a market on the land for all the products of the land.

In our last it was clearly shown that there had been a great diminution in the production of cotton cloth—the consumption of cotton wool by all the mills of the Union having diminished, since the tariff of 1846 became fully operative, *no less than one hundred and sixty-four thousand bales.* Production and consumption go hand in hand with each other; and wherever we find a diminution in the power to consume, it is the result of a diminution in the power to produce. The professed object of the tariff of 1846 was that of increasing the power of the people to consume fuel, iron, clothing, and various other protected articles; and if it has only failed to produce that effect, it is evidence that the parties to whom the country is indebted for that measure have not performed the promises they made. If, however, it can be shown that *the consumption of protected articles has greatly diminished, notwithstanding the large growth of population that has since taken place,* the fact may, and must, be received as evidence that the authors of that measure either ignorantly or intentionally deceived the people, and that the best interests of the nation require the restoration of the system under which the productive power of the country so rapidly increased as it did during the existence and under the influence of the tariff of 1842.

The mills of the Union now work up 164,000 bales of cotton less than they did two years since—less by 150,000 bales than they did three years since—and *scarcely more than they did six years since,* when the nation was just recovering from the almost universal ruin inflicted by the compromise tariff. We beg our readers to remark that we say "work up," and not consume, for the power of consumption among the people diminishes even more rapidly than does the production of cloth among the mills, and the result is, that small as is the production the markets are every where glutted with cloth, and the producers are compelled to seek a market abroad for that which can no longer be consumed at home; and *the necessity for looking to a foreign market for cloth* INCREASES *as the domestic production of cloth* DIMINISHES, *because of the diminished power to consume resulting from the diminution in the reward of labor.*

Since our last we have obtained a statement of the export of domestic cottons for the first three quarters of the last fiscal year, and the facts exhibited by it so strikingly illustrate our position in regard to this subject that we cannot refrain from laying them before our readers.

In the fiscal year 1845–6, the country was just beginning to recover, as our readers will recollect, from the destructive effects of the compromise tariff. Back debts and back interests were being paid up, and the power to produce and to consume both cloth and iron was gradually going ahead. The disease had been most serious, and the recovery was necessarily slow, but it was becoming daily more and more evident that the patient was recovering, and every where men were at work building mills and furnaces, and con-

structing machinery for the conversion of wool into cloth, and pig metal into bar iron, and bar iron into nails, axes, ploughs, and all other of the machinery required for increasing the productiveness of human labor. But three years had then elapsed since the passage of the act of 1842, and the first two of these years had been required to bring up the consumption of cloth and of iron to a level with the power of production of the previously existing machinery, and until that should be fully employed there could exist no necessity for creating new mills or new furnaces. Until 1844, there had, therefore, been but little done in the preparation for an increase in the number of spindles and looms, and it is needless to inform our readers that the creation of a mill is not the work of a day, nor even that of a year, particularly after the almost total destruction that had then so recently taken place among the machine shops of the country.

Nevertheless, the consumption of cotton, that had been in 1841–2 only 267,000 bales, attained in 1845–6 the point of 453,000; and of the cloth thus produced, the domestic consumption absorbed the whole except the value of $3,575,000, or about fifty millions of yards, requiring about sixteen millions and a half of pounds of cotton.

At 450 pounds per bale, the total quantity worked up would be	204,500,000
Deducting the export, - - - - - - - - - -	16,500,000
The actual consumption of domestic cloth appears to have been	188,000,000
The import of foreign cottons in that year amounted to $13,500,000, and this at 75 cents per pound* would give—pounds -	18,000,000
Total domestic consumption—pounds - - -	206,000,000
In the fiscal year just closed, the cotton manufactured into cloth throughout the country has been 464,168 bales, which, at 450 pounds per bale, would give—pounds - - - - -	209,000,000
The export of domestic cloth in the first three quarters of the year was $4,933,129, and if to this be added one third for the remaining quarter, the total amount would be $6,305,694, which, at 20 yards to the dollar, as estimated by the *Union*, would give 120,000,000 of yards, or about—pounds - -	40,000,000
Leaving for domestic consumption - - - -	169,000,000

Being *nineteen millions of pounds less than in* 1845–6, when the nation was just recovering from the paralysis of 1841–2, and *when the population was less than at present by more than four millions.*

The import of foreign cottons in the four quarters was $18,624,497, and if to this we now add, as before, one third for the remaining quarter, we obtain as the total import $24,832,662, which, at 75 cents per pound, would give—pounds - - - - -	33,000,000
Total, - - - - - - - - - -	202,000,000

And thus we obtain, as the total consumption of foreign and domestic cottons by *twenty-four millions* of people, under the system called free-trade, a smaller quantity than was consumed by *twenty millions* under the system that looked to bringing the anvil and the oom to take their places by the side of the plough and the harrow.

The tariff of 1842 was repealed. It was repealed that consumption might be increased, and that the people might cease to be taxed; and yet consumption withers under it, proving a steady deterioration in the productive power of the nation and in the condition of the people. Nor is this all. In 1844–5 we were endeavoring to regain our credit by paying off our debts, and a large portion of our exports was required for the discharge of back interest, instead of the purchase of merchandise. Now, the reverse is the case, and almost

* It is scarcely necessary to inform our readers that, of the imported cottons, a large portion of the value consists of labor, and very little of cotton.

every packet carries to Europe hundreds of thousands of dollars of certificates of debt to be applied to the payment for cotton and woollen goods, and yet our total consumption with a population of twenty-four millions is less than it was with one of twenty millions! It is surely time for the planters to study a system that thus destroys the power to furnish a market for their great staple. The price of the whole crop is dependent entirely upon the amount of the surplus for which they require to find a market in England, and yet every measure they adopt tends to increase that surplus and diminish the price.

The *Union* assures its readers that "it is when a people *consume* more of their products that their prosperity is greater." To this we agree. The power of consumption is the measure of the power of production. Production increased largely under the system of 1842, and production is now rapidly diminishing under that of 1846, as is manifest from the fact that, with an addition of more than four, and probably five, millions of people since the year 1845–6, the consumption of cotton goods is less now than it was then; and as the increase of consumption is the measure of prosperity, it follows that the people of the Union are much less prosperous now than they were then.

If further evidence of this be needed, we may find it in the facts presented on an examination of the iron trade, so prosperous under the tariff of 1842, and so nearly ruined under that of 1846. In reference to this great trade, we now desire to call attention to the unblushing falsehood of the *Union*, exhibited in an assertion contained in the extract from its columns given in our last number, and we do so because the necessity for resorting to such statements may be regarded not only as proof of weakness of the cause, but also of the existence of perfect knowledge among its advocates that it is so weak that it is only by closing their columns to the truth that its further existence can be maintained:—

"The consumption of cotton goods has increased in the United States, probably, to as great an extent as iron, *of which the consumption of the home manufactured article has increased more, perhaps, than any other.*"

It was asserted that the consumption of cotton goods had increased seventy per cent., whereas it is shown to have diminished. The increase in the consumption of "home manufactured" iron is here, as is seen, asserted to be "perhaps" even "more" than that of any other description of article whatsoever. How far this is in accordance with the facts, our readers shall now have the opportunity to determine.

In 1840, the domestic manufacture of iron was variously estimated at from 286,000 to 347,000 tons, and may have been about 320,000 tons. In 1841, the furnaces and bloomeries built were but six in number. In 1842, a large portion were out of blast, and the domestic production had fallen certainly to little more than 200,000 tons, and probably to much less than that quantity. In the five years from 1842 to 1846, there were built, under the "benign influence" of the tariff of 1842, thirty-four furnaces for the consumption of mineral coal, seventy-one furnaces for the consumption of charcoal, and thirty-six bloomeries, making a total of no less than one hundred and forty-one. In the last of those years, the production was estimated by the Secretary of the Treasury, Mr. Walker, at *no less than eight hundred and fifty thousand tons*, showing an increase, under the tariff of 1842, of *considerably more than half a million.*

The railroad excitement of England kept up the price of iron, and prevented the tariff of 1846 from becoming operative in 1847, and there were built that year eight mineral coal furnaces, twelve charcoal furnaces, and eight bloomeries. Since that time there have been built of all kinds but thirty-four, while much more than one hundred have failed or been sold out by the sheriff. Of those that remain in the hands of the same owners, very many are totally silent, and of the others, many are doing but little work.

The capacity of the furnaces of Pennsylvania in 1847 was—tons	550,000
The actual make of that year was	389,000
That of 1849–50 was	198,000

It will be seen that the make of that State was thus nearly one half of that of the whole Union, and that it had diminished about one half. Since the date at which the statement was made, there has been a further great falling off; and we are assured that if a new compilation were now made of the furnaces, bloomeries, &c., in and out of operation, failures, &c., the table for the west of the mountains would show a falling off of *nearly one half* of those whose product is included in the above greatly diminished quantity.

In evidence of this, we now submit the following statement in reference to a single county in Western Pennsylvania:—

PIG IRON IN MERCER COUNTY.

Furnaces.	Tons capacity.	Tons now making.	Employed hands.	Could employ.
Sharon, - - - -	1,800	1,800	60	60
Mineral Ridge, - -	1,200	600	60	100
Harry of the West,- -	1,300	out of blast	00	100
2 furnaces W. Greenwick,	3,500	400	50	240
Hamburg, - - -	2,000	out of blast	00	130
Big Bend, - - -	1,300	850	70	100
Clay, - - - - -	1,200	out of blast	00	100
Oregon, - - -	1,250	out of blast	00	100
Iron City, - - -	1,400	900	90	120
Mazeppa, - - -	1,200	out of blast	00	100
2 furnaces, C. M. Reed, -	2,500	300	30	200
Blanches, - - -	1,500	out of blast	00	110
Middlesex, - - -	1,500	out of blast	00	120
Springfield, - -	800	out of blast	00	70
Martha, - - - - -	1,000	quit business till tariff changed	00	90
Tremont Cosola Iron Co.,	1,500	1,500	120	120
	24,950	6,350	480	1,860

RECAPITULATION.

These furnaces in full blast are capable of producing pig iron in a year—tons - - - - - - - - - - - - - -	24,950
Under the *British* tariff they *are* producing—tons - - - - -	6,250
Loss of production—tons - - - - -	18,600
These furnaces in prosperous times give employment to this number of men, - - - - - - - - - - - - -	1,860
Under the *British* tariff they now employ but - - - - -	480
Number of men thrown wholly out of work by the British tariff at these 18 furnaces, - - - - - - - - -	**1,380!**

The reduction is here shown to be three fourths, and the same causes that have already closed so many are now at work to close the remainder.

In Eastern Pennsylvania the anthractite furnaces have managed to keep in motion, but the charcoal furnaces, except such as, from the quality of their ores, can produce iron suitable for making car-wheels, are, as we are informed, "emphatically extinct." In New-York, most of the iron works are closed, and such is the case with a large portion of those further east, as well as with those of Ohio and others of the Western States. The result is, that the present manufacture of pig iron and of blooms is estimated at only 400,000 tons; but, to avoid error, we will call it 450,000, which is, we are well assured, far above the truth.

In 1842, there was not, we believe, a ton of railroad iron made in the Union. In 1847, there existed a capacity for producing 100,000 tons, and the number of rolling-mills was rapidly increasing. Since then, most of them have been stopped, and many of them have been sold out by the sheriff. The number of failures, and of sales by the sheriff,

since 1847, amounted, a year since, of furnaces, rolling-mills, &c., to *no less than one hundred and twenty-four*, and by this time they reach probably one hundred and fifty.

What is the condition of the rolling mills in Western Pennsylvania may be seen by the following statement in relation to the city of Pittsburg:—

"There are in Pittsburg and suburbs fourteen rolling and slitting mills, giving employment to over two thousand operatives.

"Of these mills, we have the following report for this day: Cuddy, Jones & Co., idle; A. Miller & Son, idle; Wood & McKnight, idle; Lorenz, Sterling & Co., idle; James Wood & Co., idle; Bailey, Brown & Co., idle. Running full time: *none!* Running half time: Lyon, Shorb & Co.; G. & J. H. Shoenberger; Spang & Co.; Semple, Bissel & Co.; Graff, Lindsay & Co.; Coleman, Hailman & Co.; Lewis Dalzell & Co.; Stewart, Lloyd & Co.

"Men thrown out of employment in Pittsburg by the stoppage of iron mills under the operation of the British tariff of 1846:

FROM THE IDLE MILLS.

A. Miller & Son,	150	Lorenz, Sterling & Co.,	175
Cuddy, Jones & Co.,	100	James Wood & Co.,	150
Wood & McKnight,	150	Bailey, Brown & Co.,	150

FROM THE MILLS RUNNING HALF TIME.

Lyon, Shorb & Co.,	100	Graff, Lindsay & Co.,	75
G. & J. H. Shoenberger,	75	Coleman, Hailman & Co.,	75
Spang & Co.,	75	Stewart, Lloyd & Co., (sup.,)	50
Semple, Bissel & Co.,	75	Lewis Dalzell & Co.,	50

Men out of work, - - - - - 1,450."

[*Pittsburg Journal.*

Such being the facts, we recommend our readers to reperuse the extract furnished them from the letter of the *Union's* correspondent, in which it is stated that the consumption of home-manufactured iron "has increased more, perhaps," than that of any other article, and then to judge for themselves of the policy in whose defense it is necessary to publish statements so widely different from the truth.

In 1841–2, the year immediately preceding the enactment of the tariff of 1842, the import of pig and of rolled and hammered iron amounted to 1,955,000 cwts., or less than 100,000 tons, and this was a forced quantity, it being well known that the duty would certainly be greatly increased. The *total consumption* of that period, foreign and domestic, must, therefore, have been under 350,000 tons, and was probably under 300,000.

In 1846, the domestic product was 765,000 tons, and in 1847 it was not less than 850,000. In the fiscal year 1845–6, the import was about 85,000 tons, and in that of 1846–7 about 100,000. The *total consumption* of the first of these years was therefore about 850,000, and that of the year 1846–7 about 950,000.

The domestic production has now fallen to 450,000 tons. Has the difference been made up in the import? If it has not, the result must be to establish the fact that the power to produce commodities with which to purchase iron has diminished under the tariff of 1846. How far that has been the case our readers will judge from the following statement of facts, which we believe to be accurate.

The total quantity imported in the first half of 1849–50 may be stated in round numbers to have been 205,000 tons, and the whole year gave about 360,000. The import in the first half of the last fiscal year, 1850–51, above given, was but about 173,000. That of the second half, into New-York, was 107,000 tons; and if to this we add 40,000 tons for the rest of the Union, we obtain a total of 320,000 tons. It is thus seen that in the last year, in which there was a *very great decrease of home production*, there was also a *great decrease of importation*, although the English manufacturers appear to have

been willing to receive certificates of debt to almost any amount, and sometimes of doubtful character, in exchange for their iron.

Taking the domestic product at 450,000 tons, and adding thereto the import of 320,000 tons, we obtain a total of 770,000 tons to set against a consumption in 1846–7 of 950,000 tons; and thus we establish *a diminution of the power to purchase to the extent of almost twenty per cent.*, although the population has grown more than ten per cent.!

We beg our readers now to remark that in the estimation of the writer upon whose letter we are here commenting, *the true test of the prosperity of a people is to be found in the growth of the power to consume the products of their own labor.* From 1841–2 to 1846–7, the power of the people to consume cotton goods, domestic and imported, grew at least *seventy per cent.* It is now less than it was in 1845–6 in actual amount, notwithstanding the large growth of population. From 1841–2 to 1846–7, the power to consume iron grew from 350,000 to 950,000 tons, having almost trebled. It is now less than 800,000 tons, notwithstanding the great increase of population. Adopting the standard established by the *Union*, we now request our readers to determine for themselves if the prosperity of the people grows now as it grew then, and whether, on the contrary, it is not evident that it is now diminishing—*the power to purchase being in a course of gradual but certain decline.*

We beg them, too, to remark, that in 1845–6 and 1846–7, we paid for all the cloth and iron we used, and were gradually paying off old debts. We now buy cloth and iron on credit, and are daily increasing our debts. Let them examine these facts, and then determine for themselves whether or not we are right in saying that *efficient protection is the only road to perfect freedom of trade.*

If the reader desire now to understand why it is that the consumption of cloth and of iron diminishes, the answer may be found in the fact that we now produce less to give for cloth and iron. The man who cannot produce cloth cannot purchase iron, nor can the man who cannot produce iron purchase cloth. It will be said, however, that our agricultural products must have largely increased during the period that we have been closing up all our furnaces and mills, and compelling all our immense increase of population to go West and there employ themselves in the effort *to increase the surplus for which it is alleged that we need a market*, becoming rivals to the farmer and planter instead of customers; and in proof that such is the case, the *Union* furnishes certain statements in reference to internal trade.

It denies "that the production of commodities has declined in consequence of want of protection." In proof that production has not diminished, it says: "We may first take the New-York Canals, showing the tons of agricultural productions that arrived at tide-water on the Hudson, via the canals, in three periods of four years:—

	Tons.		Tariff of 1842. Tons.		Tariff of 1846. Tons.
1836,	173,000	1843,	346,140	1847,	897,717
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1838,	182,142	1845,	447,627	1849,	769,600
1839,	163,785	1846,	628,454	1850,	926,048
Total,	690,395		1,800,935		3,279,261

We invite the reader now to remark that the four years first given are those of *steadily diminishing protection* to the farmer and planter, in their efforts to draw the artisan to their sides, and that so far from an increase in the quantity of commodities sent to market by this rapidly increasing agricultural population, there is a decrease, the last year being less than the first by no less than 10,000 tons, and the average of the whole being exactly the same as the amount of the first year, to wit, 173,000 tons. The power to maintain trade thus diminished in actual quantity with the approach of what was called free trade—or of that which is properly denominated *British monopoly*

trade. The less cloth and iron we made at home the smaller was our power to purchase from abroad—precisely as we now see to be the case.

In the four years from 1843 to 1847 how widely different was the result! In those years we doubled the domestic production of cotton and woollen cloths, and we trebled the production of coal and iron, and yet the growth of agricultural production was great beyond all former precedent, as we propose now to show. Before doing so, however, we shall invite the attention of our readers to the fraudulent arrangement of the facts by means of which the *Union* desires to bolster up the system of 1846. Having selected for the illustration of its views the agricultural produce sent to market, the years are thus divided:

Tariff of 1842.	Tons.	Tariff of 1846	Tons.
1843,	346,140	1847,	897,717
1844,	378,714	1848,	685,896
1845,	447,627	1849,	769,600
1846,	628,454	1850,	926,048

The person who constructed this table of "the agricultural productions which arrive at tide-water," knew perfectly well that the produce *sent to market* in 1847 *was grown* in 1846, under the tariff of 1842, and that the true mode of arranging this table was as follows:—

Revenue Tariff of 1841-2.

1842,	293,177
1843,	346,140

Tariff of 1842.		Tariff of 1846.	
1844,	378,714	1848,	685,896
1845,	447,627	1849,	769,600
1846,	628,454	1850,	926,048
1847,	897,717		

The produce sent in 1843 was grown in 1842, when we built no mills, opened no mines, constructed no furnaces, and made little in the way of cloth or iron; and that of 1847 was grown in 1846, when we had increased to an enormous extent the production of cloth, and coal, and iron. Nevertheless, the quantity of agricultural products sent to market by this one route had increased *no less than one hundred and fifty per cent.*, or about *ten times the growth of population.* Under the tariff of 1846, we find the quantity decreasing considerably until we reach the last year, when it is seen to rise, and the result is that while the average of the three years is but four per cent. more than the average of 1846 and '47, the last year of the one period exceeds the last year of the other by only three per cent., although the growth of population has been ten per cent.; and if we take the growth of those States which use the canals as the channel by which to send their products to market, it must have been at least twenty, if not twenty-five per cent. Under the tariff of 1842, production, as manifested by the trade on the New-York canals, having grown ten times as fast as population, whereas under that of 1846 it has grown only one third as fast as population, it would seem to be clear that protection was the certain, as it is the only means of arriving at a large trade, and greatness of trade may be regarded as conclusive evidence of a tendency to freedom of trade.

We have now to exhibit to our readers another of the modes of arranging tables for the purpose of producing effect, so universally practised by the advocates of *British monopoly*, and particularly by this correspondent of the *Union*.

It is well known to them that there are two great outlets for the trade of the West—the Mississippi and the New-York canals—and that the only mode of determining what is the real progress in the power to produce and the power to trade, is to examine the two together; a process, however, far too honest for either the *Union* or its correspondent, both of whom make it a rule to be as cautious in the selection of facts as they are in

the arrangement of figures. Why it would not suit them to take the two great highways of trade, will be understood on a perusal of the following extract from one of the journals of the day:—

"The permanent Committee appointed to devise means for the construction of a railroad from New-Orleans to Jackson, Miss., have published an address 'to the people of Louisiana,' containing the following comparison of the business of New-Orleans for the years 1849 and 1850:—

Year.	Flatboats.	Steamboats.
1849,	1,496	2,873
1850,	924	2,784
Decrease,	572	89
Increase,	000	00

	NUMBER OF VESSELS.			TONNAGE.		
Year.	American.	Foreign.	Coastwise.	American.	Foreign.	Coastwise.
1849,	697	378	1,558	240,844 42	201,196 10	461,899 62
1850,	522	344	1,342	175,167 35	176,344 02	412,126 01
Decrease,	175	34	216	65,657 07	34,852 08	49,773 61
Increase,	000	00	000	00,000 00	00,000 00	00,000 00

"'The comparison of these years,' say the Committee, 'must not be considered as an isolated case; but, on the contrary, is too true an *exposé* of the course of trade of the city for several years past.'"

We have here an enormous decrease in the trade of this great outlet from the West, and this we are told "is but too true an *exposé* of the course of things for several years past." The years here referred to were certainly not those of the tariff of 1842, for the growth of trade during the period of its existence was almost as regular as was that on the New-York canals, as is shown in the following table, in which we place them side by side:—

Value of Produce received at New-Orleans.		Quantity received at tide-water by New-York Canals.	
1842–3,	$53,782,084	Crop of 1842,	346,140 tons.
1843–4,	60,094,716	" 1843,	378,714 "
1844–5,	57,166,122	" 1844,	447,627 "
1845–6,	77,193,464	" 1845,	628,454 "
1846–7,	90,033,000	" 1846,	897,717 "

It is clear that these cannot be the years referred to by the Committee. They were those in which manufactures grew rapidly, and consequently those in which agricultural production increased. To find those in which trade decreased, we must turn to those in which we commenced to close our furnaces and mills and mines, and to drive all our annual growth of population to the West, there to engage in the production of food—and doing so, our object is accomplished, as the reader will see by the following comparison of the results of the crops grown in 1846 under protection, with those grown in subsequent years, under the free-trade tariff:—

	Receipts at New-Orleans.	Receipts on the Hudson.
Of crop of 1846,	$90,033,000	897,717 tons.
" 1847,	70,779,000	685,000 "
" 1848,	81,889,000	769,000 "
" 1849,	96,897,733	925,000 "

It would seem, therefore, as if the *quantity* of produce sent to market by the two channels from the West to the East had been a trifle greater in the last year than it had been three years before, and that under a system that forces our whole population into agriculture, *twenty-four millions* of people had sent to market as much as *twenty-one millions* had sent under a system that added in four years to the production of cloth and iron to the extent of little short of a hundred and fifty millions of dollars per annum, while doubling the transport of produce from the West to the East.

If, however, we examine the facts more closely, we shall find that the whole increase of *value* in the last year at New-Orleans resulted from the inflation in the price of cotton produced by extraordinary misstatements in reference to the size of the crop. The quantity received was about a million of bales, and the inflation of price was not less than twenty dollars per bale, and it would be quite safe to state it much higher; but taking even this amount we obtain twenty millions of dollars, which, deducted from the value above set down, leaves but seventy-six millions of dollars for the crop of 1850, against ninety millions for that of 1846. And yet during the intervening period, the policy of the country has tended to drive the whole increase of population to the West, there to become producers of food!

That our readers may judge for themselves of the causes of the late and present increase in the trade on the New-York canals, we give them the following comparative view of the trade of the West with New-Orleans:—

Year ending 31st August,	1849.	1850.	1851.
Bacon, packages,	84,043	86,612	102,254
Beef, packages	70,590	65,271	48,066
Corn, sacks,	1,706,312	1,114,897	1,298,932
Cheese, boxes,	54,287	62,809	78,891
Flour, barrels,	1,013,177	591,986	941,106
Lard, packages,	489,847	530,385	267,501
Lead, pigs,	508,557	415,400	325,505
Pork, packages,	587,421	573,357	288,215
Whiskey, barrels,	125,029	117,753	157,741

We have here a great diminution of trade, and that diminution taking place under a system that looked to building up a great trade upon the ruins of all the mills and furnaces of the Union. The object is being accomplished. Two years since, the South and West consumed 110,000 bales of cotton, and fed the people that converted it into cloth, and now they consume but 60,000, and they have far less food to send to market than they had then. We are told that the way to have great trade is to adopt the measures necessary for sustaining the British monopoly of the trade of the world, and for separating the consumer of food from the producer of the food; yet when we come to examine the facts, we find that precisely as the loom and the anvil leave the side of the plough and the harrow, trade diminishes in actual quantity; and therefore it is that the arrivals at New-Orleans from the West, bringing to market the crop of 1848, were less than those which brought to market that of 1847, and those which brought to market that of 1849 were less than those required for that of 1848, the diminution for the single year in the arrivals by the river having been no less than 572 flat-boats and 89 steamers; while the sea-going vessels diminished in number no less than 534, of burthen amounting to 140,000 tons. The true way to destroy trade would seem therefore to lie in the direction of the tariff of 1846.

It is not sufficient, however, to ascertain how much produce the farmer sends to market. To judge of the improvement or deterioration of his condition, we must know how much it is that he obtains for it, for in the words of the *Union*, "it is when a people *consume* more of their products, that their prosperity is greater." To ascertain the power to consume, resulting from the power to produce, the return trade must be taken into consideration, but that is carefully excluded from the columns of this advocate of the maintenance of British power over the trade of the world. Why it is so, may be inferred from an examination of the following figures:—

Going *from* Tide-Water by the Hudson.

Purchased with the crop of 1835,	117,889
Purchased with the crop of 1836,	86,484
Purchased with the crop of 1837,	117,949
Purchased with the crop of 1838,	124,575
Purchased with the crop of 1839,	105,960
Purchased with the crop of 1840,	132,844
Purchased with the crop of 1841,	94,213

In this period there had been an increase of twenty per cent. in the population of the whole country, and a much larger increase in that of the States which used this canal, and yet the merchandise going from tide-water was twenty per cent. less in the last year than in the first one. What was the progress under the tariff of 1842 is here shown:—

Purchased with the crop of 1842, - - - - - - -	113,686
Purchased with the crop of 1843, - - - - - - -	135,616
Purchased with the crop of 1844, - - - - - - -	144,742
Purchased with the crop of 1845, - - - - - - -	163,125
Purchased with the crop of 1846, - - - - - - -	215,185

The first period was one in which we were buying goods on credit, and there was then, as now, every reason to believe that, with the decline of credit, the power of purchase would pass away—and such proved to be the case. The second was one in which we were paying off back interest and back debts, and to accomplish that object required very many millions that would otherwise have been applied to the purchase of merchandise for consumption; and yet the quantity sent West in 1846 was almost fifty per cent. greater than that which was purchased by the crops of 1840 and 1841—and the purchases made with the crop of 1846 were more than double those made with the crop of 1841. Trade, therefore, grew steadily with protection, as it had declined under *British* free trade.

If our readers now desire to know why it is that we consume less cloth and iron, we think they may readily find the answer in the fact that the people who need clothing and machinery have less to give in exchange for them. The power of purchase on the part of the agricultural portion of the nation grew with wonderful rapidity from 1843 to 1847, and with it grew their consumption of all the commodities needed for the improvement of their condition. How uniform and regular was the growth of both may be seen from the following comparative view of the quantities of produce received at tide-water, on the Mississippi and Hudson, and the quantities of cotton goods, of coal, and of iron consumed:—

Crops, New-Orleans.		Hudson. Tons.	Bales Cotton consumed.		* Tons Iron consumed.	Tons Coal consumed.
1842,	$53,782,084	346,160	1843,	325,000	320,000	1,367,000
1843,	60,094,716	378,714	1844,	347,000	480,000	1,718,000
1844,	57,166,122	446,627	1845,	389,000	600,000	2,109,000
1845,	77,193,464	628,454	1846,	453,000	800,000	2,499,000
1846,	90,033,000	897,717	1847,	470,000	950,000	3,130,000

We have here a steady and uniform growth of both production and consumption; and those who desire to understand why it is that the power to consume cotton and woollen cloth, iron and manufactures of iron, is now steadily diminishing, may have all their difficulties removed by satisfying themselves that the quantity of merchandise received at tide-water is far less now than it was four years since—the receipts on the Hudson from the crops of 1849 having been scarcely more than were those from the crops of 1846, while those on the Mississippi have experienced a very large reduction. It is clear that when there is less to give in exchange for cloth and iron, less of those commodities can be purchased. Our population grows rapidly, and with its growth there is a steady diminution in the power to purchase and pay for the machinery of production, and for clothing and others of the necessaries and comforts of life—and this diminution of power is manifested by a great diminution in the domestic consumption of cotton and sheep's wool, and of iron.

We invite the *Union* to explain why it was that trade was so small in the free-trade times of 1840 and 1841—why it was that it was no greater in 1842 than it had been

* Domestic and foreign.

seven years before—and why it was that the crop of 1845 purchased almost fifty per cent. more than that of 1842.

We proceed now to an examination of the facts concerning immigration, in reference to which we must be brief, having already given to this article of this advocate of British monopoly quite as much space, we think, as our readers will deem him to deserve.

Five years since, Great Britain determined to carry out the doctrine *denounced by Adam Smith, the father of free-trade*, by sacrificing her agriculturists to the Manchester economists,—driving still farther capital and labor from the land, to seek a refuge in the already overgrown towns and cities of England. The proposed object of this measure was that of rendering the United Kingdom a more fitting place for the residence of man, by increasing the facility of obtaining the necessaries and comforts of life; but so far has this new step in the progress of *British* free-trade been from accomplishing that object, that emigration from the "workshop of the world" has grown from 82,000, in 1846, to 223,000, in 1851. This would seem, as we think, to be adverse to the doctrines of this advocate of British monopoly over the trade and commerce of the world.

Why have these people fled? Because with this new step in the adoption of the Manchester system of political economy, it has become daily more and more difficult to obtain supplies of food and clothing, and because the difficulty of obtaining subsistence has increased so rapidly that the United Kingdom has lost since 1846 all the increase of population from 1841 to 1846, except about 600,000! In the five years of what is called free-trade, *the population must have diminished at least two millions*, and it has so diminished because *British* free-trade has brought with it both famine and pestilence.

Where have these people gone? To the British colonies? To the realms in which the British monopoly is in full force? Or to the half-protected American Union? To this question let the following facts make answer:—

	Total Emigration from Great Britain and Ireland.	To the United States.	To British Colonies.
1843,	57,212	28,335	28,877
1844,	70,686	43,660	27,026
1845,	93,501	58,538	34,963
1846,	129,851	82,239	47,612
1847,	258,270	142,154	116,116
1848,	248,089	188,233	59,856
1849,	299,498	219,450	80,048

Out of eight hundred thousand expelled in the last three years, the whole number that has sought the *free-trade* Canada, Australia and India is 256,000, while 550,000 have here sought protection from the British monopoly system. We beg the *Union* to explain this extraordinary fact.

How far the operation of depopulating the United Kingdom, by means of the system denounced by Adam Smith, is now going on, may be judged from the following facts:

In the first four months of the present year the whole immigration into the port of New-York was	100,571
In the same period of last year it was	79,402
Increase,	21,169
Of these there were of the people of England, Wales, Scotland and Ireland, in 1850,	62,286
in 1851,	79,953
Increase,	17,667

From this it follows that, notwithstanding the disturbed state of many parts of the continent, the whole increase from that quarter has been but 3,502, while from that portion of the world which desires to teach the world the advantage of adopting *British* free-trade, the increase was no less than 17,667, or *almost thirty per cent.!* It would

seem to be desirable that before England can expect other nations to adopt her system, she should prove its advantage in *attracting* population rather than in *expelling* it.

The total immigration into this country from all quarters in 1842–3 was 75,000, being about the average of the five previous years. It was stationary. From 1842–3 to 1846–7, it grew regularly until it reached, in the latter year, 239,000, and this it did while the continent was tranquil and Great Britain highly prosperous. This year it will probably reach 330,000 or 340,000, and this it does by aid of continental disturbances, the ruin of British agriculture, and the exhaustion and starvation of Ireland. In the four years of the tariff of 1842, it increased more than two hundred per cent. In the four years that have since elapsed, the average increase is probably twenty-five per cent. If the tariff of 1842 was injurious to the laborer, why did immigration grow so rapidly? If that of 1846 is beneficial to him, why is the present growth so slow? How the laborers are benefited may, perhaps, be judged from the following fact, which we take from the journals of the day:—

"The ship Constitution, which sailed for Liverpool yesterday, carried out 226 passengers, the most of them returning immigrants, chiefly Irish, who think they can do better in the old country than here."

Such was not the case in 1845, '6, or '7. Then there was every where a demand for labor, for we then built mills and furnaces, and we opened mines. Then machinery was in demand, as was seen in the consumption of iron. Then labor was largely paid, as was seen in the rapid growth of the consumption of cotton and woollen cloth. Then each man that came was but the precursor of two that were to come in the following year.

Now we build no furnaces or mills, nor do we open mines. Now the consumption of iron decreases. Now the quantity of produce sent to market decreases, and with that decrease there is a diminished consumption of cotton, and diminished demand for labor; and the immigrant returns to impoverished Ireland, thinking that he can "do better in the old country than here." Such are the effects of the adoption by the Union of the *British* free-trade policy, which looks to separating the loom and the anvil from the plough and the harrow!

The *Union* points its readers to the increase in the exports of flour and grain, and we now invite our readers to study the following Liverpool circular for the purpose of ascertaining what they have gained by closing mills and furnaces that were finding a market for *fifty millions of dollars' worth of the fruits of the earth*, and preventing the building of other mills and other furnaces *that would be now consuming a hundred millions more*:—

EXTRACT FROM BROWN, SHIPLEY & CO.'S CIRCULAR.

"LIVERPOOL, Friday, Sept. 26, 1851.

"The large arrivals of corn and flour prevent any improvement in the market. White corn is quoted at 27*s.* 6*d.*; yellow, 26*s.* 6*d.* to 27*s.*; mixed, 25*s.* 6*d.* to 26*s.*; Western Canal flour, 14*s.* to 18*s.*; Ohio, 18*s.*; Philadelphia and Baltimore, 17*s.* 6*d.* to 18*s.* 6*d.*; white wheat, 4*s.* 8*d.* to 5*s.*"

Western Canal flour, *freight and duty paid*, $3 36 to $4 32 per barrel! Philadelphia and Baltimore, from $4 20 to $4 44! Need we wonder, when the farmer of Wisconsin insists upon depending upon England for a market, that his wheat sells in New-York at *sixty-one cents a bushel?* How long will he continue to insist on preventing the consumer from coming to take his place by the side of the producer?

NOVEMBER.—WORK TO BE DONE.

BY PROF. JAMES J. MAPES.

FARM.—Lay up manures in compost. Gather leaves from the woods and place them in hog-pens, composts, &c., &c. Recollect that the inorganic constituents of all growth are to be more plentifully found in their leaves than in any other part. If you desire to start hot-beds in the spring, save a large quantity of leaves under cover for that purpose. Do not attempt to winter more stock than you have abundant means of providing for. If young animals are badly fed, they never thrive well afterwards. Should the season remain sufficiently open, ridge clayey soils, and thus let your land be storing up ammonia from the atmosphere for spring use; the frost will thus have an opportunity of destroying many insects, and a dressing of six bushels of refuse salt to the acre on these ridges will do away with one third the usual quantity of weeds, and nine tenths of the insects. Ridged ground will be ready for tillage in early spring.

Cut wood to be burned twelve months hence, and, if practicable, underdrain wet or heavy lands.

ORCHARD AND FRUIT GARDEN.—Read our article in the *Working Farmer* on the cultivation of Isabella and Catawba grapes, (vol. i. p. 12,) and look to fall trimmings, saving of cuttings, &c. Manure fruit trees, spading in thoroughly. Manure strawberries; cover raspberries, as recommended by Mr. Patterson in a former number. Bank around trees to prevent the attack of mice. Cover tender grapes. Remove grape layers from the parent vines. Grafts may be cut, and preserved as formerly directed. Make wire fences, which may be used for trellises.

KITCHEN GARDEN.—Attend to cold frames, and see them properly protected. Do not let your late crops be frozen in the gronnd. Put away turnips, beets, celery, carrots, &c., &c. Cover spinach, shallots, young onions, out-door lettuce, and cabbage plants with cedar brush, if you have it, and if not, salt hay, flag or straw. Protect cabbages as formerly directed. Dress and cover asparagus beds, salting them freely. Cover rhubarb. Dress globe artichokes as directed under that head. Dig up horse radish and parsnips for winter use, and protect as directed.

Bean poles, pea sticks, &c., should be stowed away in a dry place to prevent their decay.

FLOWER GARDEN.—Take up dahlia roots on dry days; do not shake off the dirt, but remove it by hand, or the tubers will break at their necks. Cut the stems within a few inches of the ground, label them carefully, and put them away in a dry cellar, free from frost or heat beyond 45°; bury the tubers in dry sand, the stems projecting above, and cover the whole with something to prevent the light from *greening* the tubers, and thus lessening their value.—Read Buist's *American Flower Garden Directory*, p. 129 to 132 inclusive. Protect half-hardy out-door plants; barrels with one head well pierced with holes, mats, brush, straw, &c., &c., may each be used according to the height of plants requiring protection, &c., all of which must be removed in early spring.

Cut down weeds, collect stakes, look to glazing frames, &c. Do not water plants while the ground is frozen about the roots.

HOT HOUSE.—Buist says, "the essential points to be attended to in the hot-house during this month are, *fire*, *air* and *water*. The former must be

applied according to the weather, observing not to allow the temperature to be under 50°, and it ought not to continue long at that degree, 52° being preferable. The shutters should be on every night when there is any appearance of frost, and taken off early in the morning. Admit air in small portions every day that the sun has any effect and the atmosphere mild, observing that the temperature of the house be above 60° previous to admission. Shut all close early in the afternoon, or when any sudden changes occur.

"In watering, it is important in this department to have the water of the same temperature as the roots of the plants."

A cistern may be so arranged as to be warmed by the flue; and by having another outside, water may be drawn from the two and mixed to a proper temperature. Do not water bulbs too liberally. Succulents may be watered twice per month, unless over the flues, when they may require it oftener.

Remove decaying leaves, and keeep the house clean.

Green House.—Air the house as often as practicable and safe, never keeping it entirely closed, even during frosts, if the sun is shining. Water sparingly. In no case leave the house entirely closed for more than thirty-six hours; rather give slight fire heat than to exclude all air.

DAISIES AND THISTLES.

Look out for those daisies. It is of no use now to scold about your predecessor, or about the occupant who preceded him. You may be as careful about your seed as you please, and study the plants you dislike as closely, and mark their seeds as diligently, and instruct your children as faithfully, and urge the importance of this knowledge on your neighbors as continually, and crowd it upon the attention of your school committees with as much industry and untiring perseverance as you please, it will not eradicate the daisies; and while they are with you, use them to the best advantage. The man who uses the choicest grain in such a manner as to produce good returns, is considered deserving of commendation. Much more, then, is he deserving of commendation who changes a curse to a blessing, the beast of fury to a beast of burden, and makes the tares which the evil one has sown for mischief the harbingers of good.

The daisy cannot be killed by mowing, but it can, if cut early, be made into hay of the first quality; and what is deserving of notice, it very rarely, even when cut quite early, sends another stalk up for seed the same season. By cutting early, then, you not only secure the daisy, but you give a better chance to whatever other grass may be intermixed to spread and gain upon the daisy. This, if you have made your ground rich enough to bear other grasses, will do. Another advantage, if cut early, will be found in preserving the seed from being shelled and scattered. If this is done, there will be but little difficulty in destroying the daisy at a subsequent ploughing and tilling. The root is easily destroyed, but the difficulty is in the seed left in the ground; and if the crop is not cut early, a large portion of the seed will shell, and be left to perpetuate the stock. Cut them early; dry them with as little exposure to dew and sun as consistent, especially after they are fully wilted.

Thistles also, if cut while quite green, will make good fodder. Sheep will pick thistles thus cut from hay, especially if the latter grew large and heavy. Thistles also, thus cut, are often destroyed; and as there is no seed to be scattered, the quantity of thistles will always diminish. But if permitted to stand until the woody fibre is developed, you secure all the prickers, and all the seed, and lose all that is valuable.—*Berkshire Culturist.*

MESSRS. BRIARD & FELL'S PATENT WATER-FRESHENING APPARATUS.

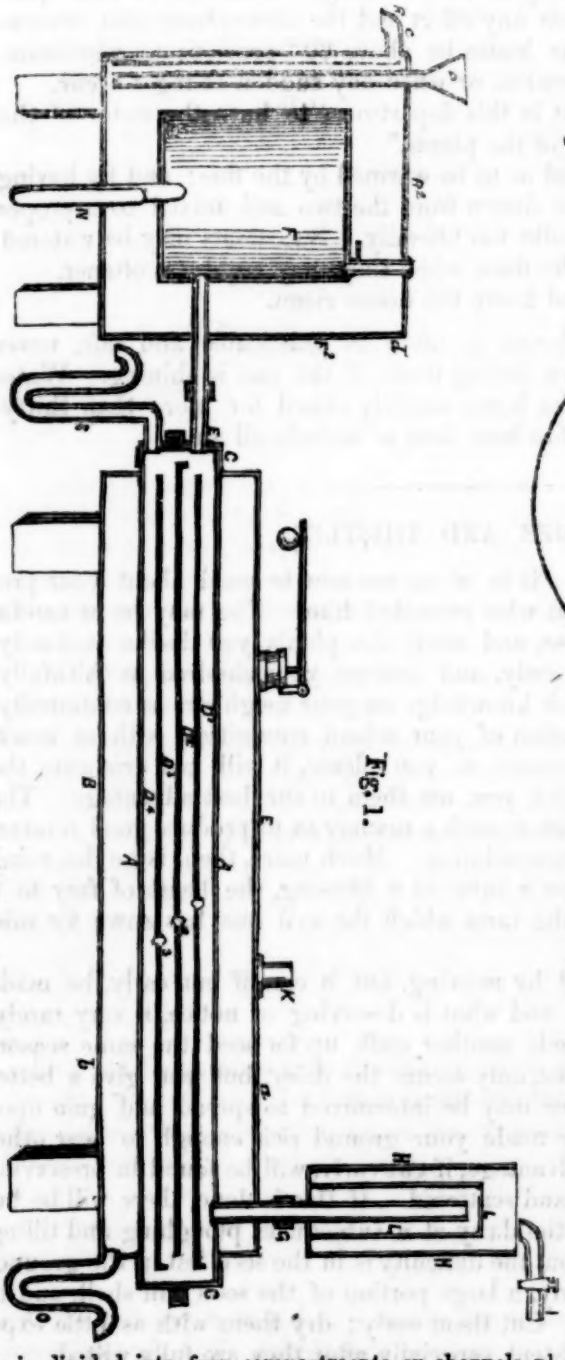


Fig. 1.

Fig. 2.

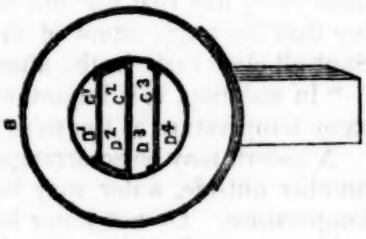
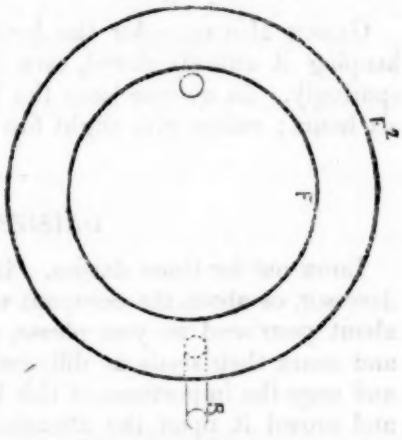


Fig. 3.



This invention has for its object the obtaining of fresh and pure water from salt water, and water containing mineral substances in solution, or containing other impurities which render it unfit for culinary or manufacturing purposes. The apparatus which is employed for this purpose is represented in the annexed engravings, of which Fig. 1 is a longitudinal vertical section, Fig. 2 a cross section on the line *a b* of Fig. 1, and Fig. 3. a horizontal section on the line *c d*. A is a cylinder, which is surrounded by, or encased in, a steam jacket B; C C are caps or covers to the cylinder. C^1, C^2, C^3, are a set of partitions, by which A is divided into four compartments or channels, D^1, D^2, D^3, D^4; and each of these partitions is turned up at one end, so as to allow the water to flow along them towards the opposite end only. At one end the cylinder A is connected by a pipe E, with a condensing and aërating vessel F, which is contained within a closed tank F^2. At the other end of the cylinder A communicates by a pipe G with a box H, into which the water to be purified is first introduced from some source of supply connected with the tap I. K is a

pipe, by which the steam from some steam-generator is admitted into the steam jacket B, so as to heat the cylinder A. (For steam, hot air may be substituted.)

While steam is thus being supplied to the steam jacket, the water to be operated upon (whether salt or other impure water) is allowed to flow from the tap I into the box H, and down the pipe G into the cylinder A, where it falls upon the upper surface of the plate c^1; but to prevent any of the water returning in a state of vapor through the pipe G, the upper end of that pipe is sealed by a hood L, by which free communication from the interior of the cylinder A with the external atmosphere is entirely cut off in that direction. The water which falls upon the plate c^1, after running along the channel D^1, falls down upon the next plate c^2, by which it is conveyed back again to the other end of the chamber, where it falls upon the plate c^3, along which it flows in a similar manner till it falls into the compartment D^4. While the water is thus conveyed successively from one end of the chamber to the other, it gets heated, and a portion becomes vaporized, and goes off by the pipe E, into the condenser F, where it gets mixed with the atmospheric air admitted by the pipe M, and is finally condensed by coming in contact with the sides of the condenser, when it is run off by the inverted syphon-pipe N and collected for use. O is another inverted syphon from which the condensed steam which has been employed in heating the cylinder A is collected. The water obtained from this pipe, not being aërated, may be employed for washing. P is a pipe for supplying cold water to the condenser, and R another pipe by which the water as it gets heated escapes. S is an inverted syphon, by which the residuum of the impure or salt water operated upon escapes from the cylinder A.

This is an English invention, which was patented last August by the inventors, and is considered one of considerable utility.

AGRICULTURE OF NOTTINGHAMSHIRE, ENGLAND.

[*Continued from p.* 209.]

LIMESTONE DISTRICT.

THE Western Division includes a district of limestone soil forming a narrow slip of land adjoining the county of Derby, to which it more properly belongs from the greater resemblance it bears to the soil of that county. It is described by Mr. Lowe as a "hungry limestone;" and although some parts of it have been much improved by drainage and by the use of bone-manure, it is still wanting in that natural productiveness which distinguishes some limestone soils. The limestone contains a large amount of magnesia, which is alone sufficient to account for the want of natural fertility.

The course of cropping on the dry and sound parts is:

1st year, turnips.
2d year, barley.
3d year, clover or peas.
4th year, wheat.

Sometimes oats are sown after the wheat, but this is a practice which is decidedly objected to by the best farmers of the district. This dry and sound land may be cultivated with a prospect of remuneration to the occupier, which can scarcely be said of the wet and cold parts still requiring drainage. On these soils, instead of the turnip crop, the farmer must have a naked fallow for wheat or barley, which is succeeded by clover in the third year, and afterwards ploughed up for wheat or oats.

Where drainage is wanting, it is a precarious district to farm, and one but

little sought after; neither can the tenant be expected to improve materially a soil lying under such natural disadvantages, unless the landlord comes forward to his aid by giving drain-tiles, and otherwise assisting him. Some landlords have shown themselves willing to do so, on the tenant being at the expense of laying them; in other instances the whole expense is incurred by the landlord, he charging the tenant a reasonable percentage on the capital expended.

THE SOUTH-EASTERN, OR CLAY DISTRICT.

Mr. Lowe has divided this district into—"1st, the clays north of the Trent, consisting of the North and South Clay Divisions, (of the hundred of Bassetlaw,) and part of the hundred of Thurgarton; 2dly, those south of the Trent, comprehending the Vale of Belvoir and the Notts Wolds."

In speaking of the clays north of the Trent, he says, "I must observe that the clays north of the Trent are in general not of so tenacious a nature as in many counties, being much more friable from containing a portion of sand, and falling more readily by the weather; particularly the red clay, of which there is a great deal in the country round Tuxford and in the hundred of Thurgarton, which might be more properly called a clayey loam, and a blackish clay soil commonly called a woodland soil, in which there is plainly a mixture of sand."

Mr. Lowe then remarks, "There is a great intermixture of open fields and inclosed townships;" and he shows in his Appendix, that north of the Trent, at the time he wrote, the proportion of townships was as 31 uninclosed to 21 inclosed: of the 31 then uninclosed, there are now not more than 3 or 4 open, and these will doubtless, by inclosure, soon be assimilated to the rest.

Of the mode of cultivation then adopted, Mr. Lowe remarks: "In the open field the common course of husbandry is:

1st. Fallow.
2d. Wheat or barley.
3d. Beans, peas, or both mixed.

The latter crop is very common in this county; the reason given for it is its smothering the weeds; but I have always observed the crops to be very foul."

It is almost unnecessary to state that since inclosures have become general, which has been effected gradually, the above limited and imperfect course of cropping has been abandoned for one more extended—one which, at the same time that it gives greater change to the soil, secures also to the occupier a more reasonable prospect of farming with advantage to himself.

The system of cropping in the clays, now more generally adopted than any other, is the following:

1st year, fallow.
2d year, barley or wheat.
3d year, red clover or grass-seeds.
4th year, wheat.
5th year, beans.
6th year, wheat, or occasionally oats.

So many, however, are the modes of different individuals in this district, arising from the various sizes of their farms, the different character of the soils upon them, not less than through the variety of condition in which they are at the present day from some having been drained and others still wanting that necessary preliminary to good farming on the generality of strong soils, with many other differences, that it is impossible to point out any one particu-

lar system of which it may be said, at least in the northern part of the county, "this is the general practice." To omit altogether the *modus operandi* of the farming in this district would be to leave imperfect an attempt to communicate all necessary information; it is however proposed to treat of mere operations more briefly than has been done in the foregoing part of this Essay. Besides, as many of the details there alluded to are the same in practice throughout the county, irrespective of the character of the soil, it will be less incumbent on us to repeat them.

The ploughing of some of the heavy orders on the strong soils is still performed by *single* ploughs; by which it is to be understood that the horses walk in a line down the furrow, the team mostly consisting of three or four horses, which require a driver in addition to the ploughman. It is more than doubtful whether in all cases these soils, in their present defective state of drainage, could be sufficiently deep ploughed by two horses abreast. One thing, however, is clear, that where four horses are necessary they would act far more advantageously, as regards draught, by harnessing them in pairs abreast. We are aware that it will be answered, that, by so doing, the land would suffer more from the treading of the horses; but we still think that, in many cases, a great advantage would be gained from the horses being nearer to their work. The lighter orders are now more frequently ploughed by two horses abreast, attached to a common swing-plough, for the wheel-plough is but little used in this county, except perhaps on the borders of Leicestershire.

First year, Fallows.—As this operation extends over at least nine months of the year, inclusive of the summer season, when by simply exposing the roots of weeds to the sun they are destroyed, it is in most cases a mere succession of ploughings, consisting usually of five. Where the land is liable to the growth of quitch-grass, the working it with light and heavy harrows is of little service; it requires the more effectual operation of being forked.

Second year, Barley or Wheat.—Although wheat is more commonly sown on the fallows than barley, we think the practice objectionable, and shall state our reasons for holding an opinion so directly opposed to the custom of the district. Wheat after fallows is seldom a yielding crop; it is too frequently *lodged* before it is shot fully into ear, and in consequence is more productive of straw than corn. It is, moreover, questionable whether, by the application of farm-yard manure to the fallows, the evil is not increased, as, by so doing, the nutriment of young plants is supplied in quantity greater than necessary, and by such means an exuberant growth is fostered in the early stages of the plant without the soil possessing in itself, or having supplied to it, those properties which might serve as a counter-check.

Mr. Topham, in his "Chemistry made Easy," has well illustrated this where he observes, "that if wheat be sown upon a soil composed in a great measure of decayed vegetation, the plant will flourish in a most extraordinary manner for a period, and by its luxuriant appearance promise the farmer an abundant return in harvest; and could it but fortunately sustain the exuberance of its germination, no doubt the produce would be equal to his fondest anticipations. But to insure this most desirable result, it is necessary that the stalk should be encased in a cylinder of flint; and if sand is not present, and an alkali to aid in its solution, the plant will bend and fall under the load which its well-gorged organs shall have accumulated, and the cultivator be disappointed of the rich remuneration it promised him." Such is the opinion of a gentleman who has sought to serve agriculture *scientifically;* let us now turn to one who has done so *practically*, for upwards of thirty years, by cultivating extensively strong soils; and, after so long an experience, has published, for the benefit of

others, the results. We allude to an "Essay on the Rotation of Crops best suited to Heavy Lands," published in 1842, by Mr. Richard Parkinson, of Knapthorpe, near Newark. This pamphlet, from its thoroughly practical character, is eminently calculated to serve the purpose for which it was written. On the subject before us the author says: "Wheat should not be sown after summer fallows on inclosed clay-lands; I have found that it is impossible to keep the land in condition and in a profitable course under that system. If the trade in barley was much depressed, and prices low, I would substitute oats occasionally after fallows." We shall leave the reader to draw his own conclusions, whether it may not be highly probable—the results of science and practice being the same—that the cases may be analogous throughout, and traced up to one cause: if so, it will go far to establish the principle we have laid down.

As the practice of sowing wheat upon fallows is very general in the north and south clays, and failure and disappointment in point of yield often attend it, we have been induced thus to allude to the subject in the hope of leading those more immediately interested to trace the effect up to the true cause, and to apply or not a remedy as they may deem it better or worse than the disease.

When wheat is sown upon fallows, 9 pecks to the acre is sufficient, if drilled; but if sown by the hand, 1 or 2 pecks in addition may be necessary. If barley is substituted, twelve pecks will be found enough when drilled, although 14 are oftener sown by hand.

Third year, Clover.—For the respective quantities of seed-clover necessary, red or white, *vide supra*. The red clover will be liable to fail if sown oftener than every alternate course, or once in twelve or thirteen years, according as the white clover remains down one or two years.

Red clover is mostly mown for fodder for the horses, and the after-crop is used for soiling them during the summer and autumn, or allowed to remain for seed, in which case it ought to be mown the first time as early as practicable, so as to allow the seed crop an opportunity to ripen early. The Italian rye-grass is grown by some with great success in this district, and forms, in case of failure of the red clover crop, a most valuable substitute, from the abundant produce it generally yields.

Fourth year, Wheat.—The practice of ploughing and pressing the clover-ley for wheat is common in the loams of the southern part of the county, where it succeeds well; but on the strong soils, where wheat is intended to be sown after grass-seeds, it will amply repay the extra trouble of breaking up the ley during the summer, or as early in the autumn as it can be done, working it to a fine mould, and afterwards ploughing and drilling in the wheat.

The roots of the wheat-plant can thus extend themselves more freely in the more permeable soil, and the slugs and snails being thereby brought to the surface, and becoming a prey to the various birds whose habits lead them to feed upon them, are prevented from doing the serious injury during the winter which they so often effect. Mr. Parkinson, in the Essay to which we have alluded, recommends shallow drilling or sowing by the hand on the common furrow, so as to keep the seed near the surface, as the best preservative against the ravages of the slug or snail.

The wheat, after being hoed in the month of April, is gone over by women, at wages from 9*d.* to 10*d.* a-day, who take out any weeds which may remain after the hoeing.

The harvesting of the crop is performed similarly to that of the sand district, as already described, the scythe having almost entirely superseded the sickle.

Fifth year, Beans.—No crop cultivated in this country offers so great a difference as regards value at the time of harvest as this does. Those who still persist in sowing, every third year, beans and peas without the aid of manure, and then leave them to their fate, without either hoeing or cleaning, till they are reaped, receive back in many instances little more than seed again. But such have been the frequent failures in this crop on the clays, that other crops, such as peas or winter tares, have been of late substituted; and, by affording a change to the land, have also been more remunerative to the grower. The most common practice is to dibble about 3 bushels of beans an acre on a common furrow, which has been exposed to the frosts previously. With this method the hand-hoe only can be made use of; but we think a superior mode is that recommended by Mr. Parkinson, which we cannot do better than give in his own words:—"The land is ploughed into ridges 20 inches apart, in November or December, in the same manner as for turnips, being previously manured with seven or eight two-horse cart-loads per acre. The beans are sown as early in the spring as the land is dry enough, in the following manner: A single-horse plough opens a level furrow in the frosted mould of the hollows between each ridge; this is followed by a man with a drill-barrow, which deposits about 3 bushels of seed per acre. The harrows are then taken two or three times over the land, and once across. It may be necessary in some seasons to go over the land once with a powerful harrow after the beans are sown, to break up the middle of the ridges. The land by this mode is left remarkably light, and in fine order for hoeing in the spring and summer. It retains its lightness in a considerable degree until the autumn, which much facilitates the putting in the ensuing crop of wheat, especially in dry weather. The beans are hoed by hand when about 2 inches high, and the land afterwards receives one deep order with the horse-hoe; another hoeing by hand, at least, is always necessary during the summer to cut up the charlock and thistles."

Mr. Watson, of Walkeringham, has grown beans with great success, by opening drills in a similar manner, but at a greater distance—even as wide as 36 inches between the drills; but that is on a deep loam of very good soil at Beckingham, where he has grown upwards of 60 bushels an acre. We have heard him express an opinion that a frequent cause of failure in this crop arises from sowing too much seed, and thereby preventing the free access of sun and air to the plants, which is necessary to their successful growth and after-productiveness. During the last two years he has, previously to the last hoeing which the beans received, sown about 2 lbs. of white turnip seed to the acre, which by the hoeing receives a cover, and thus two crops are growing on the same ground simultaneously until the beans are reaped. This double crop has so far proved satisfactory, and the practice will no doubt obtain notice from others in the neighborhood. The land upon which the experiment has been made is a strong but deep clay, in high condition; and has been furrow-drained and subsoil-ploughed. The Uley cultivator can now be used on the farm to great advantage in the driest season, in preparing the stubbles for wheat; when, perhaps, some of the adjoining occupiers are obliged to content themselves with remaining patient spectators.

Sixth year, Wheat.—The usual preparation for this crop is to plough the land with a thin furrow as soon after the removal of the beans as it can be done. The harrows are then put upon the land, and it is worked to a fine mould; it is then allowed to lie some time to encourage the growth of weeds, so that they may be destroyed by the following ploughing, which forms the seed-furrow, on which the seed is sown by the hand, or upon which it is drilled.

Where the cultivator can be used in the first instance, one ploughing is sufficient. The quantity of seed sown upon bean-stubbles is 10 or 11 pecks an acre. In other respects, the crop is managed as described under the head of wheat in the fourth year.

It has been observed that oats are occasionally substituted in this year for wheat; the low price of horse-corn has, however, of late years made the practice comparatively rare.

Instead of the six years' course described here, some prefer (particularly in the north clays) a four years' course, viz.:

1st year, fallows.
2d year, barley or wheat.
3d year, clover.
4th year, wheat.

To which the foregoing remarks made on the four first years of the six years' course apply. When this course is adopted, the clover in the third year is exchanged in every alternate course for beans, beans and peas, or sometimes vetches.

It is almost superfluous to observe that the advantage proposed in this shorter course arises from the fallows recurring oftener, so that the land is easier kept clean.

The farms throughout the county are held in general by tenants-at-will; and we are not aware of any desire amongst the occupiers, as a class, to exchange such tenures for leases.

Our reason for offering this opinion is, that confidence so generally exists between landlord and tenant, and especially so between the large landowners and their tenantry, in whose hands the principal part of the land in the county is, as to make the tenantry satisfied with the matter as it stands; for as, on the one hand, they may be exposed to a disadvantage through the caprice of their landlord, so, on the other, they cannot but be aware that, in these changeful times, when prices are constantly lowering, they have an advantage in being able to relinquish their farms at their own discretion. This advantage would, in our opinion, be strengthened by the more general adoption of a practice which now prevails in but very few instances—viz., that of the corn-rent.

The size of the farms is on the average much smaller in the clay district than in the sands, which is a great disadvantage, as we conceive, and one calculated to operate against an improved cultivation. The most common size is from 70 to 150 acres, containing in most cases a portion of permanent grass-land, which, it may be easily perceived, tends to prevent the occupiers of such farms from pasturing much of the arable land with sheep, as might be done if the farms were larger. They are driven of necessity, in order to make their rent and provide subsistence for a family, to keep an undue proportion of their land in corn, which has the effect of impoverishing their farms, not less than themselves. Household and many other expenses, moreover, press more heavily, in comparison, on small than on large farms. In making these remarks, we would by no means be understood to argue in favor of farms of such magnitude as are held in some counties: at the same time, we are convinced by observation, that the instances are few where men, as capitalists, succeed on farms of less than 300 acres; and few farm really well more than 500 acres: but where capital is plentiful, farms of about the latter size seem most desirable; and this we know to be the opinion of such occupiers as are

of considerable intelligence, in counties where the largest farms are frequently held.

On the subject of drainage, which will in this district demand attention, Mr. Lowe, in his report, is very brief; neither, perhaps, ought we to feel surprise when we consider that half a century has elapsed since he wrote. It is not a subject, we presume, on which he would at that time have much opportunity of giving information. Of draining by tiles he makes no mention whatever. Of late years efforts have been made in this way by individuals which have been attended with the most complete success, which it is our intention to describe. In many instances, however, the work has been performed by those who did not understand the first principles of the art, and who have in consequence failed to give satisfaction to their employers, the work when done being found incomplete.

We allude in particular to various attempts that have been made to overstrain Elkington's principle of deep-draining, the object of which was more especially the interception of spring-water and the conveying it away before it had occasioned injury to the land lying below. To effect by the same means the removal of surface-water is where those individuals have erred: the latter can only be done where the evil is in a soil of an adhesive nature, by making a sufficient number of surface-drains in addition to deep drains for the removal of the spring-water. We will exemplify, by reference to an individual case, what we consider the only efficient means of draining strong land, and which we do with the greater confidence from our knowledge of the results having proved highly satisfactory. The instance we allude to is upon the farm of Mr. Parkinson, of Leyfields, where may be seen the principles of drainage carried out to the greatest perfection. As it is a subject of paramount importance, we shall attempt in a few words to show what his system has been, at the same time remarking on other improvements which have been gone into there. About a year and a half ago we were much gratified by an inspection of every part of the farm, and the conclusion we then came to was, that taking into consideration the difficulties that have been overcome, and the success which has been attained, it offered the highest example of first-rate farming we had ever seen,—an opinion which remains to the present time unchanged.

The soil varies from a heavy sand to a strong loam, the whole lying on a substratum of cold clay. The spring-water has been drawn off by deep drains, some of which are not less than fifteen feet in depth, and are in most cases independent of the surface drains. These deep drains are made subservient to furnishing water for the use of the stock upon the whole farm, by conveying it into troughs, all neatly paved around and kept perfectly clean. The drains are formed of large tiles, and overlaid with stones when needful. Those for taking away the surface-water are laid about twenty-four inches deep, in some places more, and are formed of smaller tiles laid on flat bottoms, where necessary, at distances from eighteen to twenty-four feet apart. The old ridges where requisite are still slightly preserved, the drains in such case being laid down the furrows; otherwise the drains run parallel with the fences.

The fences deserve especial notice. They are of hawthorn, and nearly the whole of them have been replanted by Mr. Parkinson, and have grown up under his eye. They are of splendid growth, and form an invaluable shelter to his short-horn beasts, being allowed to rise for that purpose on the grass-land. When they are cut it is in the Scotch mode, which is becoming general throughout the northern part of the county. This work is performed by very sharp knives made expressly for the purpose, light to hand, but very effective

from their high temper. The stems are cut from the ground obliquely, and care is taken that they are all cut upwards, so as not to shatter the top of the stems which are left. If a brush is left on the further side, no other guard is necessary; but on the side from which the operation is performed, when there are cattle, it is necessary to guard it by a dead fence for about two years. The grass and weeds are at the same time cleared from the roots of the stems, and a perfectly new fence springs up, which is thick from the bottom, making shoots in a single year of surprising growth.

The course of cropping followed is similar to the one already described as common throughout the district, but with one very material improvement; namely, that instead of a bare fallow very heavy crops of turnips are grown on the whole farm. These are produced, without any artificial manure, in the following manner:—During the winter months, men are employed in burning the soil from the hedge sides into ashes; these are mixed with night-soil dried until it will admit of being riddled, so that it can be drilled as a compost. The seed is thereby quickened into vegetation, and plants are obtained which soon bid defiance to the fly. The heaviest crops of Swedes are thus grown, which could never have had an existence but for a perfect drainage.

The stock kept on the farm has been increased more than five-fold, and the produce of grain has advanced in the same ratio. It is almost unnecessary to observe that the manure is here an object of especial care. The liquid manure, when such is practicable, is conveyed by drains to the nearest grass-land lying on a lower level, and by zigzag cuttings serves to irrigate and enrich it. When that cannot be done, it drains into tanks, and is carted upon the higher grass-land, which has been thereby converted into grazing-land of the best quality, whereas it is by nature a poor, cold soil.

Such are a few of the improvements, very imperfectly sketched, which have been carried out at Leyfields by Mr. Parkinson, a gentleman of great experience and of no ordinary enterprise. These improvements, we may observe in conclusion, are being repeated by him on an estate which he purchased lately at Drayton; from which circumstance we think it fair to infer that that gentleman, after his long experience, supposes high farming not to be incompatible with profitable farming.

In this division the district south of the Trent is composed of a variety of soils,—from heavy sand to a rich loam, and even strong clay. From Nottingham to Newark, the high ground is chiefly a red soil, between sand and loam, lying upon a substratum of marl, and comprising one of the most naturally productive districts in the county. It is well calculated for sheep, and some excellent flocks may be seen upon it. These farms are many of them much improved by abutting on the Trent, which furnishes to them a proportion of good grazing-land as well as meadow; the former of which is made available in some cases for dairy purposes, and in others for grazing beasts for the Newark and Nottingham fat stock markets. The mode of husbandry most common is the six years' course, resembling that north of the Trent; substituting, however, always when practicable, a turnip crop for a bare fallow. Much of the district has been drained with tiles, and is on the whole very well cultivated, producing heavier crops at much less expense than on the sands of the western division. A stranger must be struck with the superior character of the farm buildings, which are, moreover, kept in extremely good condition, presenting a neatness in the highest degree creditable to the occupiers. The fences are not always so well kept, and might be improved upon. In the neighborhood of Nottingham, potatoes are planted in considerable breadth, as a supply for that market, and most excellent crops are obtained.

Adjoining the county of Leicester the soil assumes a more tenacious nature, and comprises the districts distinguished by Mr. Lowe as the "Vale of Belvoir" and the "Nottinghamshire Wolds."

Improvements have been here, as in other parts of the county, effected to a considerable extent during the last half century. Not only have the inclosures, which were then open, been completed, but drainage has made great advances, although it is by no means as yet perfect. When a thorough drainage is wanting, no course of cropping can be suggested which is not liable in adverse seasons to be frustrated. Whatever mode of husbandry may be proposed by the occupier of strong soils, experience has taught him that where that foundation of all good farming has not been laid, he must in consequence yield to circumstances of which otherwise he would in the main be independent. Experience will better teach him than any covenant by which he might be bound that the growing of two white corn crops in succession is not profitable, that he cannot by such a system keep his farm clean or in good condition. He will therefore, in alternate years, substitute leguminous ones; and the low prices with which he has now to contend will impel him to strain every nerve in protracting as long as possible the period between those years of naked and profitless fallows.

The live stock throughout the whole of the South-Eastern Division has undergone a similar improvement to that described in the western. As, however, in the latter district sheep are the prevailing stock, so may, perhaps, beasts be said to be in the former, from the heavier character of the soil in general, and the larger proportion of permanent grass-land.

The repeated supplies of the improved Durham breed, which have been crossed again by the best short-horn bulls, have raised the cattle to a standard of great excellence.

We have already had occasion to notice the superior flocks of pure Leicester sheep, which had gained for themselves a name when Mr. Lowe wrote of this district, and which we have every reason for supposing is in point of merit progressing; as a general remark, decidedly so.

The necessity of a quick return, through an improved breed both of beasts and sheep, has forced itself on the attention of farmers in general; and the correctness of our remarks may be best ascertained by referring to the general appearance of the fat stock brought into Newark and Nottingham markets, which will bear comparison with any in the kingdom.

(To be concluded in next number.)

THE FIRST AND GREATEST TAX ON LAND.

That transportation is the first and heaviest tax on labor and land, we have endeavored to satisfy our readers; and we have done so with a view to convince them that it is a self-imposed tax, the payment of which will cease to be required so soon as they shall have arrived at the conclusion that the farmers and planters of the Union need protection for themselves, and that in perfect protection is to be found the short and profitable road to perfect freedom of trade.

We have now before us some facts in relation to the sugar trade, illustrating so forcibly the extent of taxation resulting from distance from market and the heavy burthen of transportation, that we cannot omit to lay them before our readers. An acre of good land, when well cultivated, will produce, in the West Indies, thirty tons of *plant* cane, prepared for the mill, and these will produce sixty hundred weight of muscovado sugar; while an acre of beet-root will yield but eighteen tons, producing twenty-one and two

fifths hundred weight—a difference that would seem to defy competition, and to require protection to enable the beet-root sugar producer to live by his labor.

Nevertheless, so great are the advantages resulting from *proximity to market*, that sugar made from the beet-root is gradually driving out of the continental markets that produced in the West Indies. The production of domestic sugar in France already exceeds, as we are told, by one third the amount imported from the colonies of Martinique, Guadaloupe, Bourbon and Cayenne, *although the duty is the same on all French sugars whether exotic or indigenous;* and so strong is the tendency in that direction, that the financial returns in France for last year, as compared with the previous one, show an *increase* of duties on domestic sugar of 6,581,000 francs, and a *decrease* on colonial of 6,917,000 francs. The whole amount of duty collected was as follows:—

On French domestic sugar,	- - - - - -	30,526,000 francs.
" colonial "	- - - - - -	32,853,000 "
On raw foreign "	- - - - - -	17,863,000 "

From this it follows that whereas in 1849 the consumption of domestic was only three parts out of seven, it is now four parts out of seven, having increased almost one third; while that of colonial has diminished one fourth—and all this change in a single year! The necessary effect of this must be a diminution in the value of colonial property, because of its distance from market; and that effect must continue to be felt in a daily increasing degree, until the colonists shall exert themselves to make a market on the land for the products of the land.

For The Plough, the Loom, and the Anvil.

BUCKWHEAT.

Until within a few years past, this has been considered almost a valueless crop by many who were considered our most discerning and successful farmers. Indeed, many carried their prejudices so far, that they would not, under any circumstances, allow it to be grown upon their lands, supposing it so exhausting to the soil. Others, more tolerant in their feelings, would sometimes raise a small field, but it must be sown on the poorest corner of the farm, where no other crop would grow, and but an ordinary one of this grain. Then the farmer who was in the yearly habit of raising it was considered a slim affair; one bent on the irrecoverable ruin of his farm.

In late years, however, the value of the crop has been more justly appreciated, so that now the number of those who do not raise it is like that of those who formerly cultivated it, very small. The advantages attending its culture are numerous, and among them the following stand prominent. Its quick maturity, and consequently the delay that may attend tilling the land and sowing the seed, which latter always takes place at the North after all other crops are sown and planted, and from the 20th to the last of June, or between the time of the first and second dressing of the corn field; a season of comparative leisure to the farmer. Then its maturity is at a time when no other crop requires immediate attention, it ripening in September, between the ingathering of the summer and common fall crops.

It is a crop that will succeed with tolerable certainty when other crops will fail. Low, cool, moist, mucky lands, which are seldom dry enough for ploughing in early spring, and which are liable to suffer from drought at the very time when early-sown grain requires moisture, are admirably adapted to this crop. It germinates quickly, and the young plants soon throw their branches abroad so as to shelter the earth from scorching sunbeams, and

enable it to retain its moisture, to be given out as the growing wants of the plant require.

Buckwheat is a cleansing crop to the soil. In many of the old fields in the longer cultivated portion of the country, weeds of various kinds have crept in, as stealthy bushes or loose wild grass, and usurped the place of the more tender and delicious herbage. Wherever this is the case, it is decidedly the best crop to restore fertility and healthful cleanliness to the soil, after the bushes are removed and the sward well inverted, that can be cultivated. Its roots penetrate deep into the soil, which tends to its pulverization, and its shadowing qualities almost forbid any other plant, however strong may have been its foothold, to start beneath its branches. We have in our minds now whole fields which a few years since were covered with a vexatious, overspreading variety of potentilla, which, by cultivating with buckwheat for one or two successive years after the bushes were removed, were transformed into beautiful and productive meadows, free from the unseemly blemishes which but a short time ago disfigured and concealed their surface.

It is a good crop to stock with. It always leaves the ground in a loose friable condition, so that the roots of grass spread rapidly and freely. Although from its shading propensities, grass seed sown with it will not show much progress while the crop of buckwheat is on, yet the harvest is so early, the grass which is to follow has an opportunity to become well set in roots before the coming of winter, and thus be enabled to withstand the vicissitudes that winter brings. It is an article that farmers are prone to leave to nature and its own resources, but there is no crop that shows the benefits of manure, plaster, and ashes, more than this. Its uses are too well known to be dwelt upon. The straw, which by many is considered valueless, is an excellent manure for potatoes, and is highly valuable as a litter to place around fruit trees, its tendency being to rapid decay, and its effect to loosen the soil and leave a light and wholesome mould for its benefit. W. Bacon.

Richmond, Mass., Sept. 5, 1851.

BEAUTIES OF THE COLONIAL SYSTEM.

In a recent British journal we find a statement of the salaries of the principal officers employed by the East India Company in collecting their taxes from the unfortunate Hindoos, a people reduced by *British* free-trade to depend upon agriculture alone, and among whom a constant succession of famines and pestilences is required to keep the population down to the level of subsistence. For more than a century past has that unfortunate country been taxed for the maintenance of British armies and British tax-gatherers employed in inflicting upon it the blessings of the British colonial system, and the result is seen in the total destruction of the great cotton manufacture, followed by a scene of suffering "scarcely to be paralleled in the history of commerce." How liberally these people are forced to pay their task-masters, will be seen on perusal of the following scale of salaries and allowances:

The Governor-General, 240,000 rupees, or $120,000, per annum, and an outfit of £5,000, or $24,000.

To each ordinary Member of Council, 96,000 rupees, or $48,000, per annum, and an outfit of £1,200, or $5,760.

To each Governor, 120,000 rupees, or $60,000, per annum, and an outfit of £2,500, or $12,000.

Such are the salaries of officials paid out of taxes imposed upon a people whose wages are but a dollar per month, without either food or clothing.

We beg our readers now to remark that the largest contributors for the maintenance

of the fleets and armies employed in the devastation of Ireland and India, and the destruction of the happiness and the hopes of the almost countless millions of the unfortunate people of those countries, are the farmers and planters of the American Union. But for the power to collect taxes among the people of the world, resulting from the existing monopoly of machinery for the manufacture of cloth and iron, the colonial system could not be maintained even for a single hour. In determining to make a market on the land for all the products of the land, the planter and the farmer will not only enrich himself, but he will do more for the cause of liberty throughout the world than could be done by the largest fleets and armies; and instead of taxing himself for the maintenance of soldiers and sailors, he will be enriching both the land and himself. The true road to power, peace and freedom, lies through perfect protection to themselves in their efforts to bring the loom and the anvil to take their natural places by the side of the plough and the harrow.

EFFECT OF SEPARATING THE CONSUMER AND PRODUCER.

It has been at all times the policy of England to compel the people of the world to make their exchanges in her ports, and to have their raw materials carried in her ships, to be converted in her looms, and returned again in her ships to the place at which they were to be consumed; and in every single instance in which she has been enabled to enforce compliance with her will, the effect has been the same—the almost total destruction of the value of labor and land. In India, labor is valueless, and the most fertile lands are abandoned, while the whole class of small landholders has disappeared from the face of the earth. In Ireland, labor is of little value, and of three hundred thousand occupants of land, two hundred thousand have already disappeared—and the land itself is now being sold out under a government commission, to those of the people of England who have accumulated fortunes by acting as the middlemen between the consumers and producers of Ireland and of India. In her American possessions the same result is every where visible. The land-owners of the West Indies have been ruined and their estates are gradually passing into the hands of strangers, at prices almost inconceivably low, as will be seen by the following article from the London *Times* :—

"On the 22d ult., the extensive property on the Demerara river, known as Loo, and containing *fifteen thousand acres* of land, was sold at execution for two thousand dollars. 'The sale of this large tract of land,' says the *Royal Gazette*, 'which is situated at an easy distance from George Town, and surrounded by numerous settlers and small freeholders, is another forcible proof of the extreme depreciation of landed property in this colony. The lowest upset price, fixed some years since, for Crown lands in this country, was one pound sterling ($4.80) per acre, nor at the time when this rate was established was it considered by any means high for even the wild and remote wood lands of which the Crown property in Guiana mainly consists. Yet here we see an estate of 15,000 acres, eligibly situated on the banks of our most valuable river, with abundance of labor on hand presenting itself for employment, realizing at a public sale, and at a credit of 3, 6, 9 and 12 months, *only sixpence two thirds sterling per acre!*'"

The tendency of the whole British monopoly system is to destroy every where the power of association—to compel the people every where to impoverish their land and themselves—to diminish the productiveness of land and of labor—to enslave the laborer and then to ruin the land-owner—and yet we find the laborers and land-owners of the Union combining their efforts for the maintenance of this most destructive system, when it needs but the slightest effort to terminate its existence, and thereafter to be enabled to enrich their land and themselves—making a market on the land for its products, and returning to it all the manure now wasted on the road and in distant markets.

For The Plough, the Loom, and the Anvil.

HOME SONG OF THE AMERICAN PRODUCER.

BY WM. OLAND BOURNE.

Give me the blue of the bending sky
O'er the land of the freeman hung,
And the bright full beams of the sun on high,
While the hymn of the free is sung:
Oh, ne'er has the sky o'er a land like ours
Bent down with its arch of blue,
Or joyfully wept in its crystal showers,
Or gemmed the glad earth with dew.

Give me the land where a tyrant strong
Ne'er trod with his iron heel,
But the land where the shouting, working throng
Exult in a sounding peal;
Where the strong man looks to his Maker, God,
As he falls on his bended knee,
Then thrusting the blade in the uncursed sod,
Thanks Heaven that he is free.

Give me the land where the plough's bright share
Turns wealth from the virgin soil,
Nor melts in the forge whence the Vulcans bear
A sword for the warrior's spoil;
Not the song of the soldier's bloody trade,
Nor the trumpet's startling twang,
But the vow of peace on the altar laid
Round the hearth-stone fondly sang.

Oh, bright is the land where the golden grain
Waves over the fertile fields,
And the tall ripe corn on the spreading plain
Its harvest of bounties yields;
Where the sounding flail, as it swings in air,
Falls fast on the threshing-floor,
And the autumn sun shows the toilers there
With the gold dust covered o'er.

Weave out, from the threads of the busy loom,
A story of meaning high,
While the workers throng in the lighted room,
And in labor proudly vie;
Weave out, by the hands of the maidens fair,
As they sing mid the shuttle's sound,
The fabrics of home-made cloth to wear,
As fine as ever were found!

Let the hammer vast on the anvil ring,
As it moulds the massive shaft,
And the workers bold all their forces bring
In the skill of their handicraft.
Let the iron rest! Let the hammer groan!
Let the labor harp be strung!
While the mighty tone of that string alone
With its joy around is rung.

Kindle the flames in the furnace fire,
In the smoky, belching forge,
While the red flames leap in their earnest higher,
From the pit the toilers gorge;

Let on the blast of the bellows vast,
Till the ore with its fiery breath
To a molten sea is resolved at last,
Like a crater filled with death.

Delve down in the deep and gloomy mine,
And bring out your treasures thence;
Where the richest ores in their beauty shine,
The bounties of Providence;
They are given for use by the freeman's hand,
In the glorious arts of Peace,
Till his voice shall cry in each older land
That the despot's power shall cease.

Leave not in the earth, or the mountain side,
The wealth which is freely given;
Go, sharpen your drills, and your task abide,
Till the solid rock is riven:
There is gold in that mass of iron ore!
There is gold in that glittering pile!
Which freemen may win from the ample store,
And sing of their joys the while.

Send forth on the broadly rolling stream,
And the river's flowing tide,
With the mind of man, and the might of steam,
The vessels that swiftly glide;
Pile them up high with the countless stores
Well earned by the freeman's hand,
While they bear to the isles and the distant shores
Their blessings to every land.

The iron horse send with his heart of fire,
And the lightning speed he hath,
While his feet in their ardor never tire,
Rotating upon his path;
Pile up the burden vast and high!
For a wondrous steed is he,
In the mighty strength of his forge-cast thigh,
And the might of his pliant knee!

Let the broad land wake in its proudest bloom,
In the light of our broader skies!
Let the Anvil, Plough, and the busy Loom
In their power and grandeur rise;
Let the workers all, in their well-paid toil,
Rejoice with a labor song,
And the blessing of God on the uncursed soil
Be sought by the trusting throng.

Let the yeoman sing as he tills the land,
And follows the shining plough!
Let the toiler sing, as he lifts his hand,
Oft wiping his sweating brow!
Let the maiden sing! Let the Anvil ring!
And the radiant truth be told—
That the labor of home, in its fruits, shall bring
A truer wealth than Gold!

Then, give me the blue of the bending sky,
O'er the land of the freeman hung,
And the bright, full beams of the sun on high,
While the hymn of the free is sung:
Oh, ne'er has the sky o'er a land like ours
Bent down with its arch of blue,
Or joyfully wept in its crystal showers,
Or gemmed the glad earth with dew!

LIGHT IN THE NORTH-WEST.

In our last we laid before our readers a letter from the South-West, that had brought us the subscriptions of four anti-tariff Democrats, who had been converted to the true faith by studying the arguments which had been furnished in this journal in support of the great truth, that the planters and farmers who would grow rich must make a market on the land for all the products of the land, and thus enable themselves to restore to the land the refuse of its products; and we are happy now to lay before them unmistakable evidence that the same great truth is now making its way in the North-West, as it must speedily do in every portion of the Union, North, South, East, and West.

The citizens of Wisconsin, of German birth, have generally voted the same description of ticket that has heretofore been voted by our anti-tariff friends in Mississippi, because it bore the label of "Democratic," and the counties that they have chiefly occupied have given overwhelming majorities in favor of the men whose policy looked to the prostration of the American laborer, and the maintenance of British supremacy over the commerce of the world. They are, however, a people who read and reflect, and they are now discussing the great question of protection to the farmer and planter in their effort to draw to their side the men who drive the shuttle and strike the hammer, the result of which is seen in the following, from the *Green Bay Spectator* of the 27th ult:—

The German Platform of Brown County.—Our German fellow-citizens in this county have been holding a series of meetings at the Town Hall, in this place, for the investigation and discussion of the great political questions which interest or affect the people of Wisconsin. These meetings have been largely attended, and their proceedings manifested the utmost harmony and good feeling, and a desire fully to investigate every subject of any political importance, and to act understandingly in voting at the polls.

Among the resolutions that have been adopted are the following:

They resolved that they were Democrats, but that they should support principles instead of party, and vote only for the men who were pledged to sustain the measures which they deemed the most judicious.

They resolved that *they are in favor of a Protective Tariff.*

It is time that the planters and farmers of the whole country should meet together and follow the example thus set them by these intelligent foreigners. They have long enough been hoodwinked and deceived by the advocates of the great British monopoly, who would have them believe that they were to be enriched by a process that exhausts their soil and ruins themselves, and the sooner they shall awake to the fact that such is the tendency of *British* free-trade—and that it is by that process that Ireland, India, Portugal, and the West Indies have been ruined, and Canada has been paralyzed, the sooner will they begin to increase in wealth, and the sooner and more rapidly will the nation of which they are part increase in power.

EXTRAORDINARY CHANGE OF POSITION.

In the debate on the question of a non-exportation agreement, in the Congress of 1775, the following was the ground taken by Mr. E. Rutledge, one of the members from South Carolina, as given in the report contained in the recently published works of Mr. Adams:—

"E. Rutledge differs with all who think the non-exportation agreement should be broke, or that any trade at all should be carried on. When a commodity is out of port, the master may carry it where he pleases. My colony will receive your determination upon a general non-exportation; the people will not be restless. Proposes a general non-exportation until next Congress.

Our people will go to manufacturing, which is a source of riches to a country. We can take our men from agriculture and employ them in manufactures. *Agriculture and manufactures cannot be lost; trade is precarious.*"

Had such continued to be the policy of South Carolina, how different would now be her position! Instead of having continued, for the whole period that has since elapsed, to exhaust her soil, she would have been steadily improving it, with vast increase of both wealth and population, and she would now export cotton cloth to all the world, and Charleston would be a great seaport, occupied by extensive shipowners, whereas she maintains little commerce except with England, and most of that carried on through northern ports, in northern and foreign ships! She insists on continuing to maintain the colonial system, which looked to compeling the world to perform all their exchanges in British ports; and she is almost ready to separate from the rest of the Union, rather than follow the course indicated by her representative in the Congress of 1775.

For The Plough, the Loom, and the Anvil.

ANALYSIS OF THE TURNIP BEET.

BY J. H. SALISBURY, M.D., CHEMIST TO THE NEW-YORK STATE AGRICULTURAL SOCIETY.

THE beet has been cultivated about two centuries. During its cultivation the varieties have become somewhat numerous. The one here examined is the variety which goes by the name of *turnip beet*. For the specimens analyzed I am indebted to the kindness of Mr. Douw, of Greenbush. They were large, fleshy and crisp, and contained about the average amount of woody fibre. The widest average diameter of the roots of the four specimens analyzed was 5½ inches; average length, 9 inches; average length of tops, 14 inches; average weight of each plant, 1½ lbs.

PERCENTAGE OF WATER, DRY MATTER, AND INORGANIC MATTER.

	Fresh Root.	Fresh Tops.
Percentage of water,	92.845	88.907
" " dry matter,	7.155	11.025
" " inorganic matter,	1.113	1.530
" " " " in dry matter,	15.556	13.876

The above results show this variety of beet to be more highly charged with water than the artichoke, parsnip, or carrot. The root, as will be seen, contains almost 93 per cent. of pure water; the tops nearly 89 per cent.; leaving of dry matter but little over 7 lbs. to the hundred in the root, and 11 lbs. in the tops. The fresh roots contain but little over 1 lb. of inorganic matter to the hundred, the dry roots about 15½ lbs.; the fresh tops 1½ lbs., the dry tops nearly 14 lbs. In round numbers, 8,994 lbs. of the fresh roots of the turnip beet give 100 lbs. of inorganic matter; and 6,536 lbs. of the fresh tops, 100 lbs. of inorganic matter.

COMPOSITION OF THE INORGANIC MATTER OF THE ROOT AND TOPS.

	100 lbs. Inorganic Matter of Roots.	100 lbs. Inorganic Matter of Tops.
Carbonic acid,	21.90	19.61
Silicic acid,	1.15	1 43
Phosphoric acid,	10.55	8.32
Phosphate of iron,	1.90	3.51
Lime,	8.80	5.62
Magnesia,	1.75	8.11
Potash,	8.05	8.34
Soda,	42.35	36.33
Chlorine,	0.80	2.91
Sulphuric acid,	1.90	5.12
Organic matter,	trace.	trace.

By good management, twenty tons of the roots can be easily raised to the

acre. Twenty tons of the roots of the turnip beet contain of inorganic matter 445 lbs. These 445 lbs. are made up of—

Carbonic acid,	98 lbs.
Silicic acid,	5 "
Phosphoric acid,	48 "
Phosphate of iron,	8½ "
Lime,	40 "
Magnesia,	8 "
Potash,	36 "
Soda,	189 "
Chlorine,	4 "
Sulphuric acid,	8½ "

The following materials, in the proportions given below, furnish in sufficient quantity all the bodies removed by twenty tons of beet roots, and even more of some of them than is required:—300 lbs. of ashes, 200 lbs. of common salt, and 6 tons of good barn-yard manure.

The tops are generally left upon the ground; hence it is not necessary to include these in the materials removed from the soil.

PROXIMATE ORGANIC COMPOSITION OF ROOTS.

	100 lbs. Fresh Roots.	100 lbs. Dry Roots.
Water,	92.845	
Fibre,	2.173	29.975
Sugar,	3.120	43.039
Dextrine,	1.025	14.134
Casein,	0.142	1.965
Albumen,	0.445	6.138
Starch,	0.195	2.690
Resin,	0.080	1.103
Gluten,	0.033	0.448
Red coloring matter,	0.027	0.380
Fat,	0.010	0.138

In the above analysis we see the nutritive powers of the beet root. The average amount of dry matter in the fresh mature roots ranges from 8 to 10 per cent. One ton of the fresh roots of the turnip beet contains, of sugar, 62½ lbs.; of dextrine, 20½ lbs.; of albumen, casein, and gluten, 12½ lbs.; of water, 1856.9 lbs.

ULTIMATE ORGANIC ANALYSIS OF ROOTS.

One hundred parts of dry root gave of—

Nitrogen,	1.270
Carbon,	38.610
Oxygen,	39.240
Hydrogen,	6.054
Inorganic matter,	15.556

EVILS OF DISPERSION.

"The emigrant road over the desert, beyond Humboldt river, is literally strewed with dead carcasses. A gentleman who reached Sacramento City about the middle of July, counted twenty head of cattle in as many feet square; for forty miles they average one to every ten feet, making a total of twenty thousand. The wagons are one to every rod. Of eleven thousand that started for California last year, not one half reached their destination."

Such are the effects of a system that tends every where to prevent the farmer or planter from making a market on the land for the products of the land. Forbidden, by

the absence of markets, from raising potatoes, turnips and cabbages, commodities of which the earth yields by tons, he raises wheat, cotton, or tobacco, to be consumed at a distance; and then, having exhausted his land and impoverished himself, he flies for Oregon or California, and perishes on the way. Such is every where the tendency of *British* free-trade. It has exhausted Ireland, India, Portugal, and the West Indies, and but for even the little protection here afforded to the farmer and planter, it would have exhausted them.

THE IRRIGATION OF SMALL PLOTS OF GRASS LAND.

BY CUTHBERT W. JOHNSON ESQ., F.R.S.

As the importance of irrigation becomes more generally understood, several minor questions arise well worthy of even the farmer's consideration. The word "irrigation" naturally induces the cultivator to think of meadow lands lying by the banks of copious streams; or if he extends his views to the far more valuable system of sewerage irrigation, he as naturally thinks of those favored meads adjoining populous places—towns whose sewerage is available in copious supplies. This, however, is taking a very limited view of the value of sewerage irrigation, even on a small plot of ground to a farm. There are very many situations where the farm house is situated at such an elevation as to admit of its sewerage being carried by its own gravity on to desirable lands adapted for the formation of watered plots of grass; and although the plots which are thus watered must be of limited extent if they have to rely upon the house sewerage *only*, yet where there is an available spring of water to dilute the sewerage, in that case plots of grass may be readily watered to an extent worthy of most farmers' attention; for not only is one rood of such a mead fully equal in produce to three of ordinary pasture land, but it furnishes grass for the purpose of soiling, not only early in the spring, but late in the autumn—periods when it is not procurable from any other source.

As I observed on another occasion, (*Cottage Gardener*, vol. v., p. 39,) the advantage of applying house sewerage to grass has long been known to be very considerable. For the purpose of testing the various little points of detail which might arise when carried on on a small scale by small landholders, I laid down the turf on a plot of grass in my garden, near Croydon, in February and March, 1850. This was only 16 yards long, and 13 yards broad. The bed, therefore, contains only about 208 square yards, and is surrounded by a raised border of turf about two inches high, to prevent the escape of the irrigating sewerage; and for a similar purpose the bed is divided by two turfed ridges of about the same size into three compartments. These ridges would have been repeated crosswise, so as to divide the bed into nine compartments, (to suit the size of our beds to the bulk of our sewerage,) had we not wished to avoid impeding the action of the scythe, the whole produce being intended for the soiling of a pony. Soon after the bed was formed, earthenware pipes of about two inches bore were laid down, extending from a tank constructed on some higher ground than the grass-plot, the contents of which, whenever the tank is sufficiently filled, is allowed (by the lifting of a plug) to flow on to the grass; the orifice of the pipe from whence the sewerage issues being about eight or nine inches above the level of the turf. From this pipe the sewerage is distributed, by means of an open wooden trough, to any part of the plot that is just cleared. Our practice has been to cut sufficient grass for two days' consumption, and then immediately the grass is removed, to direct on to the cleared space all the sewerage which has accumulated since the last cutting, occasionally adding to its bulk by allowing

some pump water to flow for a minute or two from the sink through the house-pipe drain into the tank. By this plan the collateral advantage has arisen that the sewer-pipe, tank, and delivery pipe, as well as the house sewerage itself, by being so constantly cleansed or removed, has not time to undergo putrefaction. The plan, therefore, is carried out (generally the first thing in the morning) without any of the inmates or visitors to the house being aware that such a manuring is systematically going on. The result, in fact, shows that the noxious effluvia from sewers arises, not as a necessary result of the matter conveyed in them, but from their ill construction, and the barbarous practice of allowing the long accumulating contents of overflowing cess-pools and choked drains to flow into them.

The general result of this little experiment has been such as to induce me to confidently and warmly recommend the repetition of the plan to such of my readers who are so situated that the contents of their house-tanks can be directed by its own gravity on to a conveniently placed grass-plot. The herbage produced by this mode is not only exceedingly luxuriant, but the pony and some goats we notice decidedly prefer it to either lucern or meadow grass, produced without irrigation; and the same remark is made by one of my neighbors, who has a field irrigated with the water of the river Wandle, which contains occasionally a notable portion of the drainage of the town of Croydon.

It is perhaps of little use (as our turf was only laid in March) to report one season's produce of grass; still, as we have kept an account of it, it may be cheering to the reader to have the account. The grass was not ready to cut the first time until May 25th, since the turf had to establish itself, and to contend with dry weather. The weight and the days of cutting were as follows:—

May	25,	28	pounds.	June	8,	65	pounds.
"	27,	40	"	"	10,	50	"
"	30,	42	"	"	12,	50	"
June	1,	50	"	"	15,	50	"
"	3,	60	"				
	Total,	435	"

The ground was then irrigated as I before described, only once. It began to grow again *immediately*, and kept on in spite of a very dry season, which *parched up all the surrounding* grass lands. By July 27th it was ready to cut again—the produce being evidently better than before. The days of cutting and the weight of this second crop were then—

July	27,	75	pounds.	Aug.	5,	60	pounds.
"	30,	65	"	"	7,	50	"
Aug.	1,	55	"	"	8,	40	"
"	3,	40	"	"	10,	75	"
	Total,	460	"

The same plan was a third time carried on of cutting and irrigating; the same dry weather still attended us, and the same growth of grass took place. On the first of October the cutting of our third crop of grass was commenced. The produce was as follows:—

October	1,	70	pounds.	October	11,	50	pounds.
"	5,	50	"	"	14,	45	"
"	7,	50	"	"	16,	45	"
"	9,	50	"	"	18,	45	"
	Total,	400	"

The same immediate irrigation was applied to the land, and the same rapid

shooting of the grass for the fourth time took place. The reader will remark that we have thus secured three crops, and lost the time (in February and March) sufficient for the growth of a fourth; but, omitting that from our calculations, we have mown 1,295 lbs. of grass off 208 square yards of land since the turf was first laid in March, or at the rate of 13¼ tons per acre. The sewer-irrigated meads of Edinburgh always produce four or five crops annually, and I see no reason why we cannot do the same in future seasons, for the soil is evidently improved as well as its produce by the irrigation. By the term house-sewerage, I mean the term to comprehend the entire house drainage in its most extensive sense.

It is fortunate that we are able (in spite of the distastefulness of the inquiry) to ascertain not only the bulk of the sewerage flowing from a house, but its chemical composition. Its bulk may be regarded, in the case of houses well supplied with water and water-closets, to amount to about ten to fifteen gallons per day for each member of the establishment; and yet notwithstanding its necessary mixture with water, it still may be very advantageously diluted with several times its bulk before it is allowed to flow on to the grass. Its composition has been recently examined by Dr. Anderson (*Trans. High. Soc.*, 1850, p. 370). This report is the more valuable because it contains the analysis of not only the sewerage of a city drain at Edinburgh, but also that from a tank belonging to a public establishment. As the Professor remarks, the sewerage water of Edinburgh was taken from the mouth of the sewer just as it enters the irrigated meadows near Lochend. It contained a considerable quantity of solid matter in mechanical suspension, which was carefully mixed up with the water by agitation, and the whole employed for analysis. This, which was made with great care, by Mr. Hugh Taylor, gave the following results in an imperial gallon:—

	Grains.		Grains.
Organic matter soluble in water,	21.90	Phosphoric acid,	6.14
Organic matter insoluble in water,	21.70	Chlorine,	12.20
Peroxide of iron and alumina,	2.01	Potash,	2.89
Lime,	10.50	Soda,	13.27
Magnesia,	2.00	Silica,	6.50
Sulphuric acid,	6.09		
Total,			105.20

What is here called organic matter is the whole amount of volatile matter expelled by a red heat. It contains, however, a very large quantity of ammonia, amounting to not less than 7.7 grains in a gallon, in addition to which the organic matter contained 5.93 grains of nitrogen in the form of nitrogenous compounds.

The Morningside sewerage was taken from the tank at the Morningside Lunatic Asylum, in which the whole sewerage water of the establishment is collected. The analysis, which was made by Mr. Rowney, includes the whole of the matter mechanically suspended in the water:—

	Grains.		Grains.
Organic matter,	51.77	Soda,	3.00
Alumina,	4.93	Potash,	2.66
Protoxide of iron,	10.34	Carbonic acid,	11.22
Lime,	11.99	Sulphuric acid,	3.12
Magnesia,	2.84	Phosphoric acid,	1.32
Common salt,	4.49	Silica,	25.02
Total,			132.71
Ammonia,			3.18

From the result of these examinations it would appear that, of the specimens examined, the town water is richer in all the valuable constituents of a

manure than that of Morningside. At the same time, concludes Dr. Anderson, I consider the latter as in all probability giving a *better general idea* of the value of sewerage water than the former. It is easy to compare the value of sewer water with that of any other manure, by calculating how much of it will contain the same amount of valuable matter as any quantity of the manure in question. Selecting ammonia as the most important constituent, I find by calculation that in round numbers 10,000 gallons of the Edinburgh, and 36,000 gallons of the Morningside sewerage water will contain about the same weight of that substance as 100 lbs. of Peruvian guano.

These results afford ample materials for the useful consideration of the owners of every farm—nay, of every rural garden. And when the citizen reads this, he too may make an inquiry, and place upon paper a few figures well worthy of his profitable consideration. Let him take the sewerage of London, *daily* amounting to more than 40,000,000 gallons; let him calculate the value of only the ammonia and phosphate of lime of each 36,000 gallons of this vast bulk to be equal to that of 1 cwt. of Peruvian guano, viz., £9 per ton. Having taken these data, let him multiply its daily value by 365, and then let such an inquirer coolly ponder over the results. It will amount in annual value, he will find on these data, to about £210,000. In making such an inquiry, too, he will probably afterwards remember, after a little reflection, that this huge mass of valuable matter is at present not only *merely wasted*, but that it is allowed to be actually injurious to mankind, by corrupting the waters of the river from whence they are supplied, and the atmosphere in which they exist.—*London Farmer's Magazine.*

COMPETITION WITH CHEAP LABOR.

"The more cheap labor you purchase, the richer you will grow," says our late Secretary, Mr. Walker. "If you obtain two days' labor for that of one day, you make a good exchange." Such is the doctrine upon which is built the whole modern system of British free-trade; and yet we every where find the Englishman himself flying from the competition of cheap labor. In a recent British journal, the special advocate of the colonial system, we find the following passage, which we recommend to the careful consideration of all those who think it better to *compete* with England in the effort to underwork the half-starved Irishman and the perishing Hindoo, than to *combine* their efforts with those of the people of Germany, of Belgium, and of France, for the annihilation of the monopoly by means of which the people of Ireland and of India have been prevented from bringing the loom and the anvil to take their places by the side of the plough and the harrow.

Speaking of Van Diemen's Land, the writer says:—

"The higher class of emigrants, on the other hand, naturally avoided a colony where nearly a half of the inhabitants were criminals undergoing punishment; while in the towns, the artisans and tradesmen were *continually exposed to the ruinous competition of convict labor.* The consequences have at length proved detrimental in the highest degree. Owing to the scarcity of free emigrants, land, during the last few years, has seriously declined in value. The commerce and trade of the island have languished from the same cause; and unless speedy measures are taken to arrest the downward progress of this once flourishing colony, we may expect to see a still more rapid period of decay."—*Colonial Magazine.*

Great Britain and Ireland, under the system denounced by Adam Smith, but now

known by the name of British free-trade, have become one vast prison, in which the condition of the people is so much worse than that of convicts, that it is now taught in books of the highest authority among free-traders that labor is a commodity like all others, and that the man who, however able and willing to work, cannot find sale for his commodity, has no right to claim a seat at the table provided by the Giver of all good things for the benefit of all mankind. He must starve. If, then, competition with the convict labor of Van Diemen's Land, *who must be fed*, be found destructive of the value of labor and land, how much worse for the laborer and the land-owner must be competition with the labor of the man who is kept in a great prison, *with no right to claim even food*, unless he can find some one willing to grant him a modicum of subsistence in exchange for his labor. We beg our farmers to remark the fact, that the greater the *necessity* for competition with the cheap labor of Europe—the larger the quantity of food for which they have needed to seek a market abroad—the lower, invariably, has been the price of grain; and we beg our planters to remark the fact, that the more their *necessity* for competing with the cheap labor of India—the larger the quantity of cotton for which they have been compelled to seek a market abroad—the lower has been the price of cotton. If they wish then to raise the value of their own labor and their own land, the true and only road to the accomplishment of that object is that of making a market on the land for the products of the land, and thus diminishing the necessity for competing with the occupants of the vast prison of the Eastern Hemisphere.

It is here said that, "owing to the scarcity of free emigrants, *land has seriously declined in value*." Such decline has taken place in all the Southern States, because men have not only not come into those States, but have been steadily flying from them, because of the unceasing exhaustion of the land and waste of the planter's capital. To avert this decline, it is essential that population should be retained by making a market on the land for the products of the land.

CHEMISTRY APPLIED TO AGRICULTURE—DR. ANDERSON.

BY A FARMER.

THE peculiarity of Dr. Anderson's style of treating questions connected with agriculture is, that he is the first and only one, of the numerous writers which have passed under our notice, who admits that he has any thing to learn from practical men. This peculiarity is the more striking as it is the very antipodes of the opinions expressed by more than one of his predecessors. As remarked in a previous paper, the writers on agricultural chemistry were prepared with an answer to *every* question proposed to them; they knew the value of a manure, or of a hitherto untried article of food, whether for man or beast; they knew, by the aid of analysis, what a soil required to make it fertile for sugar-cane or cabbage, potatoes or palm-trees—no matter whether the soil examined might be from Demerara or Greenland. As the very reverse to such ignorant presumption—for we can call it nothing else—Dr. Anderson, in his lecture delivered at Glasgow, acknowledges that he has "questions constantly presented to him, on which he possesses no information at all." In the present days of quacks and quackery in matters bearing on agricultural chemistry, when the agricultural world is in a state of nervous anxiety for information, bold indeed must that man be who makes such an acknowledgment. It is a more cutting reproof to those who thought they had a "solution in their laboratory to every question proposed to them" than we dared to administer. Nor does Dr. Anderson think we shall ever arrive at an answer to these "questions" by the maiden efforts of science. No; "we

must depend for their solution on the mutual aid of science and practice; the two must go togetner."

A correspondent of the *Times* criticises this address very severely, and complains that it contains nothing new. We uphold, on the contrary, that it is entirely new, but more especially in modesty. By the way, we are at a loss to know why the *Times* should have been selected as the medium for criticising Dr. Anderson's lecture, instead of any of the numerous papers and magazines exclusively devoted to agricultural subjects.

Whether such an avowal be complimentary to Dr. Anderson or not, we confess to have derived great pleasure from this lecture, containing, as it does, a clear summary of the views we have in this series of papers endeavored to maintain. We have, therefore, nothing to criticise or find fault with, but gladly embrace the opportunity thus afforded to gather up the scattered fragments of good sense we have met with in the course of our labors.

The object of the lecture is to explain the principles of manure; or, in other words, why they act beneficially, and how we can improve them.

When any plant is burnt, a large portion of it disappears, and the residue is called the *ash* of the plant. With regard to the first of these two portions, namely, that which disappears in the fire, or as they are commonly called, the *organic constituents*, we have a two-fold source from which they may be derived. "The plant may, and in some instances does, obtain the whole of its organic constituents from the air, but this is far from being the only source from which it obtains them; for in all soils there is found a large quantity of *organic matter*, containing the whole of the organic elements (carbon, oxygen, hydrogen, and nitrogen) in such a condition as admits of their passing into a state in which they may be assimilated by the plant." It will be observed that Dr. Anderson does not enter into a discussion on the merits of the theory proposed by Johnston, that plants extract their nourishment from the soil as *humic*, *crenic*, *apocrenic*, *glic*, and *ulmic* acids, or in the form of *ulmin* and *humin*. Nor does he discuss the opinion of Liebig, that plants are fed by the carbonic acid of the atmosphere. "Some of the facts of the case have been determined in the laboratory;" but as long as science and practice work separately, the only result has been mere speculations like the above, of which science has supplied "one set, and practice the other." Dr. Anderson has contented himself with stating the fact that the organic matter present in the soil is useful to vegetation, as proved by its removal by certain crops: how it acts is one of the matters on which we require further information.

With regard to the *ash*, or inorganic portion of the plant, Dr. Anderson states that "every fertile soil must contain all the constituents of the plants which grow upon it, and that, too, in a sufficient quantity to supply many successive crops." But the mere presence of these substances does not insure the fertility of the soil: it is necessary that the state of combination in which they exist be such as admits of their becoming readily available for the growth of the plant. In the first place, they must be presented to it in a soluble condition. At the same time they must not be too readily soluble, or the rains would soon carry off the valuable matter. In soils, and what we may call natural manures, as the dung of animals, this risk is avoided by the arrangement that the ingredients required by the plants are, in the soil and in fresh dung, in the state of insoluble compounds, which are only rendered available to vegetation by very slow decomposition. The whole principle of agriculture, says Dr. Anderson, is to obtain by proper management, from a given surface of land, a greater amount of vegetation than it is capable of yielding in a state of nature. This is effected by two methods: the first is by tillage, which by breaking up the land and exposing it to the atmosphere facilitates the decom-

position of the insoluble matters in the soil, and renders them available to vegetation; the other method of increasing the fertility of the soil is by supplying to it those substances which the plant requires,—in other words, by the use of manures.

Dr. Anderson gives as his opinion that a fertile soil must contain all that the plant requires: so a good manure, or one which is to be generally useful, must also contain "all the substances requisite to vegetation," that is, those which are present in the *ash*. In the course of these papers we have occasionally had to dispute the extravagant estimates which some writers have formed of the value of a single substance as a manure. For instance, a French chemist asserted that the value of a manure might be calculated by the amount of nitrogen it contained; others again have lauded the phosphates, and alleged that with a plentiful supply of them the plant required nothing more. Dr. Anderson's opinion, as above quoted, and in which we cordially agree, strikes at the root of such crude opinions. He arranges the ingredients of a good manure, as regards their comparative value, as follows:—first, ammonia; next, phosphoric acid; and then potash.

Those substances—as nitre, the salts of ammonia, superphosphate of lime, and some others—which are capable of supplying separately only one of these three important ingredients, can only be "advantageously used in those cases where the soil is deficient in the single ingredient they contain." As such instances are, however, very rare, the safest plan the farmer can pursue is to use those manures which contain all the substances required by vegetation. The first of these is farm-yard manure, which must always be the farmer's mainstay; every thing else ought only to be considered as an assistant to it. Farm-yard manure will always contain more or less of the ingredients present in our crops; whereas, the artificial manures, as commonly applied, will only contain one or two of them: their chief advantage being that they contain the valuable constituents in a "more concentrated form, more free from foreign and worthless ingredients, and consequently in a state in which they may be carried to the farm at less cost than the deficiency could be supplied by bringing farm-yard manure from a distance." It is these properties which constitute the chief value of artificial manures, and when they are used along with a portion of farm-yard manure, the farmer by this combination secures the best possible mixture for his crops.

Dr. Anderson acknowledges that we are as yet unable to decide as to the best method of managing farm-yard manure. By too much fermentation the risk of losing the ammonia is greatly enhanced, and by too little the inorganic matter remains insoluble, and consequently unfit for immediate use. The application of small quantities of gypsum remedies the former evil, and the latter the farmer has to some extent under his own control.

There are several other disputed points on which Dr. Anderson treats in the lecture in a very clear, intelligible manner, removing the prejudices with which some manuring substances are viewed, and correcting the artificial value some of them have obtained. Amongst others, he shows that bones in their natural state are richer as manure than boiled bones, and much more likely to be useful than burnt bones—some practical men being disposed to estimate the latter as highly as either of the other kinds. Dr. Anderson justly considers guano to be the best of all these artificial manures, because it combines in itself, to some extent, all qualifications which have been assigned to a good manure. It contains ammonia, phosphoric acid, and potash or soda.

Such is a brief summary of the views advocated by Dr. Anderson; and however they may have suffered in our hands, in the lecture they are explained with clearness and delivered with modesty.—*London Farmer's Magazine.*

PHOSPHATE OF LIME AS A MANURE.

THE following article will interest many of our agricultural readers. Of all of them we would direct the attention with special reference to the fact that English farmers are willing to pay for this substance £5 or $24 per ton, while American farmers waste millions upon millions of tons of manure, because of their determination not to make a market on the land for the products of the land. The *Mark Lane Express* of the 18th of August gives the annexed account of proceedings in the Royal Agricultural Society of England, in relation to the "American Phosphate of Lime:"—

The Secretary having been directed by the Council to make special inquiries on the subject of the occurrence of mineral phosphate of lime in the United States, and in reference to the specimen of that substance which Dr. Daubeny had forwarded to the Duke of Richmond, replies were received from His Excellency, the American Minister, Dr. Daubeny, Sir R. I. Murchison, Sir Charles Lyell, Capt. W. H. Smyth, Dr. Shawe, Prof. Johnston, of Durham, Mr. Johnson, Secretary of the New-York State Agricultural Society, and Dr. Cooke, Professor of Mineralogy in Harvard University, and laid before the Council on the 25th of June last. The following results may be deduced from this correspondence:—

1. That mineral phosphate of lime has been found in the American States of New-Jersey and New-York; and there is a great probability that it will be discovered in other States of the Union, as well as in Canada; it is also not improbable, from analogical considerations, that this crystalline substance may be found to exist among the metamorphic masses of the Highlands of Scotland and elsewhere.

2. The specimen from New-Jersey, forwarded by Dr. Daubeny to the Duke of Richmond, had the appearance of a remarkable variety of crystalline rock; but the formation in which it occurred was not stated. It was found by Prof. Maskelyne to contain 95 per cent. of the phosphates of lime, iron, and alumina. Its importation was made by Messrs. Jevons, of Stamford place, Liverpool. One vein alone, discovered in New-Jersey, would supply the English market for many years.

3. In the State of New-York a great mass of this mineral has been discovered, and a shaft had already been sunk to the depth of nearly thirty feet. This vein occurred at Crown Point, near Lake Champlain, in Essex county, and the abundance of the mineral was so great as to lead to the conclusion that this mine contained an inexhaustible supply; the locality was also favorable for facility of transport and ready shipment. This vein consisted of grains and crystals; and on analysis, in America, has been found to contain a much larger proportion than the Jersey mineral, of which some specimens yielded only about forty per cent. of the phosphate of lime, while the Crown Point mineral gives eighty per cent. of that substance, free from chalk, containing only a small amount of quartz in grains, and of the fluoride and chloride of lime. It is very soft, and pulverizes easily, and is more readily dissolved than the Jersey variety. It can be delivered in London, in the rough state, or powdered ready for use, as may be thought most desirable. By single-horse power two tons a day may easily be ground.

4. The price at which the Jersey phosphate was first offered was five guineas per ton; but its interest immediately ceased, in a commercial point of view, when the importers, on fallacious grounds of supply and demand, injudiciously raised the price to £7, forgetting that there were already other forms of phosphate of lime in this country available to the English farmer. It is

now fully believed, by moderate and intelligent Americans, that the United States phosphate can be afforded in the English market at such a price as will render it a cheap fertilizer; and, as it can easily be reduced to powder, its value cannot be doubted, provided it be treated with sulphuric acid, and thus rendered suitable as a manure for those crops for which phosphate of lime has been found, by experience, to be advantageous.

5. Professor Johnston, of Durham, to whose personal visit to the United States we probably owe the attention thus paid to this mineral, occurring so abundantly in that part of the world, remarks:—"American farmers in general have not the knowledge to appreciate the value of such a manuring substance as this, nor the ability to purchase it when manufactured into super-phosphate of lime; the discovery, therefore, will be a boon, for the present, to both countries. It will make more abundant and cheap the means of fertility which our soils require; while by supplying a new article of traffic only saleable in Great Britain, it will form a new bond of connection between our kindred nations."

WHAT GIVES VALUE TO THE LAND OF ENGLAND?

Such is the question asked by an intelligent correspondent in one of the late English journals; and as most of our readers are land owners, and therefore directly interested in understanding what it is that gives value to land, we think we cannot do better than lay before them the answer that is given to the question:—

"Why, I ask again, is the price of land high in England generally? Why, evidently, not because the land itself is better than in other countries, but *because a ready market for all sorts of produce is within reach*, by means of roads, canals, railroads; that labor is cheap and abundant; that life and property are secure; that we have close at hand the means of grace, and education, and improvement; in short, that circumstances are favorable for such a life as shall be convenient and desirable here below, and shall prepare us for eternity hereafter. Thus the same land may be almost worthless or very valuable, according as it is well or ill provided with these things."

By some of our readers it may be said that there is here one requisite that cannot be obtained by them—that labor cannot in this country be "cheap and abundant." Directly the reverse is the fact. High-priced labor is cheap labor, while low-priced labor is dear labor. The Hindoo who works for a dollar a month, out of which he finds himself, cannot compete with the well-fed laborer of Alabama, nor the well-fed, well-clothed and well-educated workman of Lowell. It is when the labor is largely productive that the laborer is well paid; and high as may be his wages, his labor is cheap by comparison with the unproductive labor of other countries. It is, too, when labor is largely productive that labor is abundant, because to render it thus productive it must be aided by machinery; and we know well that a single steam-engine will do more work than a hundred, or even five hundred men. The reaping machine enables one man to do the work of ten; and the threshing machine and the grist-mill dispense with labor the performance of which would require armies for its execution. With each such machine labor-power becomes more abundant, labor becomes more productive, and land becomes more valuable. An acre of flax land in Belgium commands as much rent as would purchase eight or ten acres of cotton land in Alabama. Why? Because the flax land has a "ready market for all sorts of produce within reach," and the cotton land has no such market. An acre of wheat land in England rents for as much as would purchase five, six, or eight acres of as good land in Wisconsin. Why? Because the former is near market, and the latter is distant from it; and the farmer knows *and feels* that he it is that must pay the cost of going to market. The

FIRST TAX TO BE PAID BY LAND AND LABOR IS TRANSPORTATION. How long will our farmers and planters insist upon paying the enormous amount of taxation that they impose upon themselves, by failing to make a market on the land for the products of the land? How long will they continue to exhaust their land and themselves, and deprive themselves of "the means of grace, education and improvement," that are so difficult to obtain when men are widely scattered, and so easily obtained when they are enabled to combine their efforts for obtaining them?

A VISIT TO THE COAL REGIONS OF PENNSYLVANIA.

A CORRESPONDENT in Philadelphia furnishes *The Plough, the Loom, and the Anvil* with an exceedingly interesting sketch of a "Week's Recreation" in the coal region. We almost regret, when such matters offer, that our design will not admit the insertion occasionally of articles wandering slightly from the great objects to the advancement of which we are pledged. Like Ulysses, it would be agreeable to lose ourselves momentarily in the isle of Circe, or to taste the fascinating lotos; but life is in earnest, and it will not do to be drawn away from its practical purposes by the charms of inactive relaxation. We are consequently obliged to confine the extracts we propose to make from our correspondent's diary to those portions which have more direct reference to the mining interests of our land:—

"POTTSVILLE.—We ascended, on the day after our arrival, a hill on the north side of the town, and examined the new Court House and the rising walls of the new Jail. Pottsville, it seems, is in future to be the county town, as it should have been in the first instance. The first mine which we visited we found on this hill, with a simple crank for two horses, and a windlass, to draw up the coal from the mine. This, perhaps, is the simplest form of power applied to get out the coal. The next is the direct power of mules or other animals, or men, to draw it out; and the next is doubtless the stationary steam-engine, which we afterwards found at every mine in Schuylkill and Carbon counties. The view from the top of this hill is very fine, but the one from the hill directly opposite, on the south side of the town, is still better. In fact, there is nothing more varied than the prospect of hill after hill and dale after dale (they scarcely amount to valleys) which compose the surface of the region. The Hogarthian curve of grace and beauty is finely illustrated in the *belle scène* of this variegated country. It has much the physical appearance of portions of South Wales, except that the valleys are not large enough, nor the land sufficiently cultivated."

Our traveller finds ample room for moral education among the mining population, and suggests the establishment of "reading rooms, lyceums, circulating libraries, and temperance societies" in their midst. A capital idea, but who is to carry it out? He states, however:

"It is very true that a comparatively great change has taken place in the practices and habits of the contractors and miners since the visit, many years ago, of the renowned Graham, who taught not only abstinence from alcohol but from all animal food. At that time, as we were informed by an intelligent gentleman at Summit Hill, they were in the habit of dealing out, per order of the contractors, 'six nippers' a day. The rule now is, that no rum shall *enter* the mines. We believe this rule is nearly universal, though very often evaded by the workmen."

Of the machinery and modes of transporting coal from one point to another, we have the following description:—

"The whole range of the mining operations, as well as the character of the

coal, in Schuylkill county differ very materially from those in Carbon. In the latter, especially at the Lehigh mines, the locomotive power is gravity, acting by means of inclined planes. Loaded cars move off majestically and gracefully from the mines, and run the distance of six or seven miles with no other power to propel them. The grade is adapted to moderate motion, say ten miles an hour. A man accompanies a long train of cars, and, by means of the brake, controls very effectually the velocity of their motion. Empty cars which leave Mauch Chunk are drawn up what is said to be the longest inclined plane in the world—2,462 feet, we believe—by means of a steam-engine stationed at the top. Bands of steel, three eighths of an inch in thickness, and eight inches wide, extend down the plane, and are wound at the upper end around 30 feet cylinders by means of the steam-engine. A car attached to the lower end is placed behind a long train of cars, and literally pushes them up. Passengers are in this way driven up to 'Mount Pisgah,' where they enjoy one of the finest panoramic views in the county. The Delaware Water Gap, between which is Schooley's Mountain in the distance with Mauch Chunk lying cozily at your feet, the blue mountains opposite, and a beautiful valley, along whose side you glide from Mount Pisgah to the mines by an unseen and apparently spiritual power, form a combination of circumstances calculated to make one feel that he is in fairy land. Another summit, however, has to be mounted before you arrive at the town that bears that name. The whole of the movements of cars, loaded or empty, except the mere drawing them out of the mines, and up these two planes, is obtained by these gentle grades. These grades, by the way, forcibly illustrate the facility with which men do their duty when the *will* responds to it. These grades act like the will upon man, and gravity moves the cars, when immense power would otherwise be necessary, as is the case in other districts, to move the coal towards its various points of destination. One hill in this region has been literally uncapped. Hundreds of feet of earth have been removed from its mighty top, and the coal vein laid entirely bare. It is now, and has long been, quarried in open day-light. This also distinguishes the Lehigh region from the Schuylkill and other localities. In those places the rule is to begin to work the vein at the foot of the hill, and drive upwards. For this purpose, long shafts have frequently to be dug, in order to strike the vein, care being taken, if possible, not to go below the level of the ground in the valley, that the water in the mine may run out; otherwise expensive machinery will be necessary to pump up the water. Mines, indeed, sometimes become valueless on account of the expense necessary to keep them dry. In some cases, long tunnels are dug to carry off the water at a lower point.

"It is a remarkable fact, in reference to these immense veins of coal, whose thickness varies from three or four feet up to fifty, that those on the northern side of the hills are generally defective, while those on the southern side have the best coal, and are more profitable. They appear to form in the Lehigh region what is called a saddle, and rise from the valleys, which they cross, towards the tops of the hills, when they either pass over and join others on the opposite side, or, as is the case at the Summit, 'crop out' on the top of the hill. The vein, however, will be found on the other side just the same. There are sometimes four veins, one below the other, at distances varying from ten to several hundred feet.

"The process of breaking the coal is a little curious. It passes between two large cylinders, on one of which there are teeth, and on the other corresponding depressions. By a single passage through, the coal is broken into all

possible sizes. It then passes through screens formed in cylinders, like the screens at grist mills through which flour is bolted. The coarser screens allow the largest and the finer only the smallest coal to pass through. The sizes are thus accurately graduated. Boys sit at the *embouchures* of these screens and pick out the slaty portions, while men are continually wheeling away the finest part of the screenings, which have no value, and constitute large hills of refuse dirt, which, however, will doubtless some day, by some enterprising Yankee, be found to be useful. It does not pay at present to carry this fine coal to market.

"In Europe, particularly in Wales, the land around the coal and iron mines is in a high state of cultivation, and the Vale of Glamorgan is the most celebrated in the world for its beauty and the extent of its agricultural products. In our coal region, on the contrary, nature's majestic forests, or the small growth which follows the taking off of the large timber, are seen up to the hill-tops as well as in the vales. Wood is, in fact, in great demand for the mines as supports, and is daily becoming dearer in all this region. The wood, while standing, will now sell for from $60 to $120 per acre for purposes connected with mining; and as there are no provisions for its reproduction, it will in a few years become very scarce and dear. In the mean time, resort will probably be had to iron bars and plates for the same purposes as wood is now used; in fact, iron plates are now used in the slides and tunnels of the coal, both in and out of the mines.

"There is a prevalent opinion, both in our coal region and in Europe, that coal lands are unproductive. In speaking with an intelligent gentleman at the Summit, he remarked that the lands will produce nothing, on account of the presence of the coal, and added, on seeing some potato patches in a good state of cultivation, 'except potatoes.' These the Irish laborer will cultivate wherever he is found. Now it is well known that the potato requires the richest land,—land in which wheat and all the *cerealia* will grow,—and is itself one of the most nutritious of vegetables. The Irish laborer is wise, and produces an article that is more nourishing than any other which can be produced on the same space of ground. Besides, the presence of large timber is proof positive of the richness of the soil, and its ability to produce both corn, wheat, rye, potatoes and other important agricultural products. Indeed, several farms in a good state of cultivation prove that the land is good. Why should it not be cultivated, and the food consumed by the miners in their underground work be produced on the surface of the same land? In this way the producer and consumer would be brought together, and the products of both mines and farms would assume a higher value. CATO."

HOW MANUFACTURES TEND TO INCREASE THE PRODUCTS OF AGRICULTURAL LABOR.

WE invite to the following paper the attention of our agricultural readers, and beg at the same time to remind them that the consumption of iron for the preparation of machinery for the *production, conversion, or transportation of the products of the earth,* is now less by about two hundred thousand tons than it was four years since, although the population has increased in that time not less than three millions:—

"I was pleased to find here a cheap Steam Engine on wheels, (four-horse, costing $325, all appliances included,) from the manufactory of Hoard & Bradford, Watertown, Jefferson Co. I visited and spoke of their works some fifteen months since, and I learned to-day that they have been unable to fill

their orders promptly at any time during the past year, owing to the continually increasing demand, although they have meantime quadrupled the number of their workmen. They make engines with boiler, &c., as low as $75, (half-horse,) requiring about as much fuel as a parlor fire, and from that up to six-horse, ($400.) The one here exhibited can be guided to the barn or stack to thresh out and winnow the grain, and when that is done will propel itself to the field in quest of a job of stump-pulling; thence will travel back to the house and there saw up the winter's wood about as fast as a man can hand it along, beguiling its leisure moments by pumping water for the cattle, churning, turning grind-stone, hanging the brass kettle over the kitchen fire, and rocking the cradle. Of course I speak only of the power; to apply it to all these various uses, other machinery is requisite. But I have seen enough to convince me that for all purposes where essentially stationary power will answer, steam is already cheaper for the farmer on a liberal scale than horse-power, and that it is a shameful waste of human labor to cut up a pile of wood with an axe. For ploughing, transportation, and such essentially locomotive uses, I think cattle must still be employed until the time (which cannot now be many years ahead) when the steam engine shall be superseded by some agency or motive force which does not so rapidly exhaust or consume the material or elements of its power."

SPEECH OF THE HON. EDWARD EVERETT, AT LOWELL, MASS.,

On Wednesday, September 24th,

ON THE OCCASION OF THE UNION CELEBRATION OF THE MIDDLESEX AGRICULTURAL SOCIETY, AND THE MIDDLESEX MECHANICS' ASSOCIATION.

Mr. Everett spoke in reply to the compliment of the presiding officer, substantially as follows:—

I deem the great objects of the Society and those of the Mechanics' Association, whose members unite in this festival, of the utmost importance. They comprehend no small part of all that has been done for the culture and civilization of man. We do not enough reflect how much we owe to the arts of the husbandman, the mechanic, and the manufacturer; how much they do for us all, every day of our lives. Strip society of all that these arts have done for it, and you reduce man at once to pastoral and savage life. You turn him out, like the wandering Arab or Tartar, to roam with his flocks and herds over arid deserts and dreary *steppes;* or like the aborigines of this continent, to earn a precarious living by hunting and fishing.

But although reflecting persons feel, when they consider the subject, that it is the arts and industry of the husbandman, mechanic, and manufacturer, by which man has been elevated in the social scale and brought within the reach of moral influences, we do not all realize that we have not yet gone as far as we can or ought; that, vast as the progress is which has been made in the cultivation of the useful arts of life, particularly of late years, we are still, no doubt, in the infancy of improvement; that man always must be in this respect, in a state of infancy, because there are absolutely no bounds to his possible progress. The individual man grows old, but the race does not grow old; a tide of new life is for ever pouring in; fresh minds start into being, adding to their native powers all the advantage of the teachings of their

predecessors; and thus keeping the race (where no causes of degeneracy exist) always young, vigorous, and progressive.

It has ever been a favorite idea of mine, sir, that we live on the verge of new improvements and discoveries equal to any yet made; that in the earth we tread, the air we breathe, the water we drink, and the substances of all kinds—mineral, vegetable, and animal—which we daily handle, there are the materials and elements of new discoveries, which, when made, will astonish the world. Yes, sir, the quarry and the forest—the soil and the air—the streams and the winds, are full of elementary principles and hidden arts, and unseen adaptations to human comfort; they are replete, bursting, I might say, with great truths. The intelligent artisan—I appeal to the worthy President of the Mechanics' Association, if he has not experienced the emotion—the intelligent artisan can almost hear them address him, like the imprisoned genius in the Eastern tale, imploring him to touch the spring—to speak the magic word—which shall call them into being.

I would apply these remarks to the husbandman, as well as to the mechanician, although, as you told us, sir, in your instructive discourse, from the earliest records of our race, the calling of the husbandman is coeval with man; and although the farmers as a class are said to be rather disposed to adhere to old ways. Yet, sir, I have no doubt that in the several departments of husbandry, in what relates to climate, soils, manures, animals, implements, seeds, roots, grains and grasses, vast improvements are yet to be made; improvements equal to what has been witnessed in any other branch of industry.

You will be surprised perhaps, sir, to hear me express the opinion that any improvement can be effected in reference to *climate;* that being a thing outside, beyond, above us, which we must take as kind Providence pleases to send it. But much can be done, sir, to modify the influence of climate. In the neighborhood of large towns, (and the railways are constantly enlarging this neighborhood,) a very great business is carried on in the way of raising fine fruit—particularly grapes and flowers under glass. I am afraid to repeat the estimates I have heard on this subject. It is a growing business; and by the use of hot air, hot water, and steam, it will be carried a good deal farther. I have not the least doubt that fuel enough is burned *to waste* annually, in every farmer's house in Middlesex county, to heat a conservatory, which, with careful culture, would furnish grapes in a single year enough to pay the outlay of the building.

Sir, the great subject of shelter (which is the question of climate in another shape) has not been enough considered. Whenever you cut down a large piece of woodland, you change the climate of the tract of land which was shielded by it from the prevailing winds. When you clothe the summit of a hill with a thriving plantation, you make a milder climate for the slope which is thus sheltered. I have seen tender shrubs killed by removing a building which protected them from the northeast; and every one knows that delicate fruits rarely fail to ripen in a thickly-built city, which are very uncertain in the country. In short, sir, if any one doubts the extent to which climate consists in shelter, let him remark the difference between the north and the south side of a high compact wall, when the snow is going off in the spring. You will have a little glacier one side of the wall and dandelions in blossom the other.

I saw the other day at Nahant a very striking illustration of the effect of shelter in producing a change of climate. On the highest part of that pen-

insula, a spot over which the northwest wind in winter comes charged with needles' points and razors' edges, and where, in the spring, the east wind distils from his dripping wings a chilly dampness that carries a raw feeling to your very bones; I say, sir, on this spot, and on the northern slope of it, the perseverance and skill of an intelligent gentleman has created an entirely new climate. He has clothed the most elevated portion of the promontory with trees for shade. His cottage is hidden in a grove of his own planting, and that commenced, I think, less than twenty years ago. On the northwest slope of his grounds he has a garden filled with the choicest fruits of the season; not raised under glass, but in the open air, and on standard trees. I saw the most beautiful pears I have seen this season, with peaches, plums, and apples. Well, sir, this, as I said, has not been effected by glass, by furnaces, or by hot walls; but by shelter, and not much of that. Rough bats of wood, higher or lower, as required, some of them twelve or fifteen, others twenty or twenty five feet high, nailed up an inch or two apart; these have produced the mighty effect and produced the climate of Provence on the cliffs of Nahant. A solid fence would not stand the mighty power of a northwester on this exposed spot; the thin slats a few inches apart stand very well, and seem to answer as effectually.

Well, my friends, you will be ready to exclaim, "Oh, yes, this is a single case—a very special instance in which, by a great outlay of money, a desired result has been produced on a small scale." I have no doubt Mr. Frederick Tudor (I trust he will pardon me for making free with his name) has expended a good deal of money on his house and grounds at Nahant, but it did not strike me that the fence of slats—the main instrument of effecting the change of climate—could have cost a great deal. I think any farmer who lives near a saw-mill could, for five dollars, b y slats enough to do all that has been done by Mr. Tudor in this respect.

And now, sir, having alluded to this gentleman's operations at Nahant, and the expense bestowed upon them, I will observe that they furnish another striking illustration of what has been done in the way of improvement, by intelligence and perseverance, in our own day and neighborhood. The gold expended by this gentleman at Nahant, whether it is little or much, was originally derived, not from California, but from the ice of our own Fresh Pond. It is all Middlesex gold, every pennyweight of it. The sparkling surface of our beautiful ponds, restored by the kindly hand of nature as often as it is removed, has yielded and will continue to yield, ages after the wet diggings and the dry diggings of the Sacramento and the Feather rivers are exhausted, a perpetual reward to the industry bestowed upon them. The sallow genius of the mine creates but once; when rifled by man, the glittering prize is gone for ever. Not so, sir, with our pure crystal lakes. Them, with each returning winter, the austere but healthful spirit of the North,

> —— "with mace petrific, cold and dry,
> As with a trident smites and fixes firm
> As Delos floating once."

This is a branch of Middlesex industry that we have a right to be proud of. I do not think we have yet done justice to it; and I look upon Mr. Tudor, the first person, I believe, who took up the business on a large scale, as a great public benefactor. He has carried comfort in its most inoffensive and salutary form, not only to the dairies and tables of our own community, but to those of other regions throughout the tropics; yes, sir, to the farthest East. If

merit and benefits conferred gave power, it might be said of him with more truth than of any prince or ruler living,

"Super et Garamantas et Indos
Proferet imperium."

I think, my friends, you will not be sorry, in reference to this product of our own Middlesex, to hear a little anecdote of what once happened to myself. When I had the honor to represent this country at London, I was a little struck one day, at the royal drawing-room, to see the President of the Board of Control (the board charged with the supervision of the government of India) approaching me with a stranger, at that time much talked of in London —the Babu Dwarkanauth Tagore. This person, who is not now living, was a Hindoo of great wealth, liberality, and intelligence. He was dressed with oriental magnificence. He had a rich Cashmere shawl, held together with a large diamond brooch, on his head, by way of turban; another Cashmere round his body; his countenance and manners those of a highly intelligent and remarkable person, as he was. After the ceremony of introduction was over, he said he wished to make his acknowledgments to me, as the American Minister, for the benefits which my countrymen had conferred on his countrymen. I did not at first know what he referred to; I thought he might have in view the mission-schools, knowing as I did that he himself had done a great deal for education. He immediately said that he referred to the cargoes of ice sent from America to India, conducing not only to comfort but health; adding that numerous lives were saved every year by applying lumps of American ice to the head of the patient, in case of high fever. He asked me if I knew from what part of America it came. Well, sir, it gave me great pleasure to tell him that I lived, when at home, within a very short distance of the spot from which it was brought. It was a most agreeable circumstance to hear, in this authentic way, that the sagacity and enterprise of my friend and neighbor had converted the pure waters of our lakes into the means not only of promoting health, but saving life at the antipodes. I must say I almost envied Mr. Tudor the satisfaction which he could not but feel, in reflecting that he had been able to stretch out an arm of benevolence from the other side of the globe, by which he was every year raising up his fellowmen from the verge of the grave. How few of all the foreigners who have entered India, from the time of Sesostris or Alexander the Great to the present time, can say as much! Others, at best, have gone to govern—too often to plunder and to slay. Our countryman has gone there not to destroy life, but to save it; to benefit them first, while he reaps a well-earned harvest himself.

And thus having got you, my friends, to the banks of the Ganges, in my rambling discourse, I am going to bring you here to Middlesex—to Lowell itself—by a short cut, and furnish you at the same time another illustration of the progress of the arts you cultivate, and of that connection between the husbandman and the manufacturer which was so ably set forth by the orator of the day. You are all aware that great quantities of coarse cottons used to be brought thirty years ago from India. It was an important branch of commerce: the advertising columns in our newspapers were filled with long lists of hard Hindoo names of goods now seldom heard of. Of the younger portion of the company, few, I suppose, have ever seen a piece of this India cotton, such as was formerly imported in great quantities. I will presently show you a specimen of it, bought and worn by me forty-four years ago; but I must first tell you on what occasion, and for what purpose.

In the month of February, 1807, I was sent for a few months to the acad-

emy at Exeter. There was at that time among the pupils of the academy a military company, of which all the boys who were emulous of serving their country in arms as well as arts were members. I joined it, sir, and was tolerably successful as a soldier. I did not get to be a commission or even a warrant officer; but I rose in due time to be a right-hand man, or rather boy, of the rear rank of the fourth section, which, for a red-haired urchin under thirteen years of age, and standing four feet six in his shoes, was thought to be doing famously. Well, sir, our corps had a uniform, and that uniform was a jacket and overalls of plain white India cotton. It was intended, I suppose, by this pacific garb, to tame down the terrors of our array; to smooth, in some degree, the wrinkled front of grim-visaged war; and to show that, even while preparing for its dire summons, we were still willing to put on the vestments of white-robed peace. At any rate, sir, we wore white jackets and trousers; and here is my jacket, which has, by I know not what domestic chance, been preserved. [It was held up by Mr. Everett, greatly to the amusement of the company.]

Here it is, sir, an authentic specimen of the India cotton once brought in great abundance to this country. The name of such a piece of goods is unknown to me; whether it is from the piece of Baftas, or Saunahs, or Beerboom Gurrahs, or Mow Mahmoodies, or Gutchpoor mammicollies, I pretend not to say. I can only say that they used to come by the ship-load, and specie by the ship-load went to pay for them. It is, as you see, sir, coarse as hop-sack; you could almost shoot peas between the threads. If you ever wove a piece of cloth like that at Lowell, you would think it dear at five cents per yard; and yet I assure you that, to the best of my recollection, this very piece cost at retail, when it was bought in the country forty-four years ago, twenty-five cents per yard!

Now, sir, compare the cloth of which this poor little jacket is made with the cottons furnished at a third of the price, at the present day, by the manufacturers of Middlesex, and see the progress of the useful arts. Then remember that the cottons of India were to be paid for in specie, the least advantageous form of trade; and that the cottons of this country are manufactured from a material which grows on the soil of the United States, and is woven in your own looms by those who eat bread raised by your own husbandmen. Recollect all this, and you will, I think, understand a little better what Middlesex manufacturers have done for Middlesex husbandmen; and what both, while they sustain each other, have done for the rest of the community.

AGRICULTURE.

PRIME of the arts, spring of domestic ease,
Pride of the earth, and patron of the seas!
Kind Agriculture, give thy potent aid
To spread thy fields where gloomy forests shade;
"Where savage men pursue their savage prey,
Let the white flocks in verdant pasture play;"
"From the bloom'd orchard and the showing vale,
Give the rich fragrance to the gentle gale;"
Reward with constant boon the laborer's hand,
And shed thy clust'ring bounties o'er our land.
Westchester's sons spurn not your rocky toil:
Your country's glory is a cultured soil. MORRISANIA.

THE ANNUAL FAIRS OF 1851.

Any custom having for object closer unity among those classes whose interests and labors point to common ends, should be encouraged and furnished with all the sanction of prescription. Not that the offensive and defensive alliances which are becoming the vogue among laborers and mechanics, as an imaginary protection against the oppression of employers, and the competition which development and improvement are constantly introducing into the arts, are deserving of confidence; for we cannot help regarding the tendency of such associations as narrow and exclusive, and leading to a most disastrous derangement of the social system. We refer to the peaceful contests of skill, the admeasurements of progress, the inter-communion of ideas, the exchange of practical suggestions, which are annually elicited by the State and county gatherings in this country, whether of the producers of raw material or of those whose manipulations convert the growth of the soil into the direct or indirect means of feeding, covering, sheltering the population of the globe. Theories, of which ninety-nine out of a hundred are not worth the paper that perpetuates them, have no admission at these popular councils. The ideas are strictly inductive, in most instances the inferences of severe experiment, and have a value both for the giver and receiver which any figure preceded by a dollar mark is quite inadequate to express. This is preëminently apt to be the case in agricultural meetings. The farmer joins his neighbors at the end of what may be termed the rural year, and together they reap the ripe harvest of experience, the "grain in the ear," the practical teachings and results of the season, which the subsequent long leisure of winter enables them to mature and prepare for experimental application. Not only so. The occupation of the cultivator tends to isolate him from his fellows. The major part of the year is necessarily devoted to farm labor. The intervention of distance forbids the employment of unoccupied moments in neighborly discussions with other farmers of his district. Unless there is a definite time, so arranged as to fall upon the season when the farmer is comparatively idle, there is small likelihood of the advantage of a social interchange of views being attained at all. The attraction of these assemblies is heightened by the presence of the actual and successful results of cultivation and stock-growing; and there is every inducement laid before the visitor to participate regularly as the opportunities recur, in the advantages and pleasures and humanizing effects of such periodical intercourse.

There is one feature, indeed, that might, we think, be of great additional value, if universally adopted and heartily followed out. We would have the county or State fair represent all the mechanical, scientific and practical departments of skill and labor, as well as the agricultural. All men, immediately or mediately interested in production, should embrace these occasions of debating and developing their intimately interwoven interests; of ascertaining by what means all branches of industry may advance abreast, and therefore with the largest amount of common profit; of removing baseless prejudices and destroying the senseless jealousy which arrays the workers at the Loom and Anvil against their brother at the Plough. When this improvement in these already immensely useful organizations shall be generally introduced, we shall arrive at the greatest possible good to the greatest number, which is the aim of *all* social organizations.

The value of such institutions in the eyes not only of the planter, but of the statesman and politician, is annually rising. The agricultural and planting interests of the country are so incomparably greater in their numerical importance, if merely counted off by the head and estimated as a political engine, as to arouse men of all classes at last to a just sense of their importance. As the body of growers become more and more addicted to association and co-work, not only among themselves but with the mechanical and manufacturing classes, their influence will extend, and perhaps make its weight sufficiently felt to secure some long-desired advantages from Government. The time has come for the planters and farmers, South and North, to insist on the establishment of a

National Bureau of Agriculture. The value of such an executive department as a receiving and disbursing agent of practical information—a medium for the interchange of ideas, and for obtaining the *matériel* for an annual volume, embodying the results and deductions of experiment not only in this country but in others governed by similar thermometrical conditions—can hardly be exaggerated. The action of the various larger or smaller societies could not have a happier direction than toward the attainment of this central distributing reservoir of agricultural knowledge.

The conventions and exhibitions, State and county, have been unusually interesting this fall. The improvements evinced in the modes and applications of culture have gained decidedly in ratio upon those of previous years. It has been remarked that raisers of stock make an unprecedentedly fair showing. The stories of enormous and healthy crops have been confirmed. The samples of vegetables and grains produced have been remarkable. Agricultural implements are found to be improved, and more favorably commended to practice, by the combined wit and ingenuity of the farmer and mechanic. The whole summing up of the year's business evinces an obvious growth of interest and intelligence on the part of the rural population. The attendance of the eminent personages of the land has been larger, and their sympathy with the wants of the farmer more cordially and unreservedly uttered. The noted names of Gen. LEWIS CASS, Hon. DANIEL WEBSTER, Hon. STEPHEN A. DOUGLAS and Gen. JOHN A. DIX have been among the officials and dignitaries who have done homage to the office and dignity of the farmer. We only regret that the practical design of our magazine forbids the reproduction of some of the eloquent remarks delivered by these and other gentlemen before several large agricultural conventions.

THE MACON CONVENTION.

WE are rejoiced at any movement among the people at the South which holds out the slighest promise of developing their idle resources, and employing the materials and advantages they possess for commercial intercourse with foreign nations. The Southern States have never realized their own strength. Nature and fortune have there been prodigal of good gifts. Soil, climate, the number and direction of the estuaries, the unequalled stretch of coast, the numberless harbors and sea-ports, point clearly to an endless production of the great staples, and boundless facilities for exchanging their surplus with the productions of other lands. Cheap labor, abundant natural power to drive machinery, and navigable streams affording the means of easy inland communication, as clearly indicate the matchless opportunities presented for the conversion of the staple crop, without the deductions now made from its value in favor of the agents of transportation and sale. Commerce and manufacturing are alike invited and encouraged by what nature and circumstances have contributed to do for the dwellers on the soil; and yet the South has hitherto allowed itself to be mainly dependent on the Northern States and England for both those important interests.

We are rejoiced, we repeat, to observe that there is a growing indisposition to submit to this unnecessary commercial and industrial dependence. A Convention of Cotton Planters was summoned to meet at Macon, Georgia, on the 27th of October, to take into consideration the ways and means of vindicating Southern interests from their present subordinate condition, and placing them on a sounder basis for the future, beyond the reach not only of foreign speculators, but as far as possible of all the ordinary accidents and vicissitudes of trade. We hope a great deal from the deliberations of this body. With a common evil distinctly before them, and affecting common interests, there is every reason to believe the consultations will terminate in devising an effectual remedy. We can hardly believe the good sense of the Convention will be misled by visionary and impracticable schemes. Such an one was contained in the call for the meeting

issued by a highly respectable body of planters in Florida. They proposed the formation of a "Cotton Planters' Association," an immense commission partnership, having branch houses at each of the important cotton-shipping ports, who should receive all the cotton of the South; advance upon it liberally; sell it under no circumstances for less than eleven cents per lb., even if they should have to hold it for a year or two to obtain that price; and thus equate the value of the annual crop, so as to afford the planter a certain return for his capital and labor. Practice must speedily knock any such plan in the head. The $20,000,000 embarked in it would melt rapidly away, and prove utterly inadequate to the immensity of the design. The planter who should part with a portion of his wealth to establish such a concern, would have the rest absorbed in efforts to sustain it; and three years would superinduce a general bankruptcy more ruinous to all hands than the crash of 1836–7.

Nor would the success of the enterprise answer the objects of its inventors. Stringent as the monopoly might be, it could not escape the over-mastering influence of consumption. The laws of trade are not arbitrary, that the will of man may suspend or abrogate them. They are as immutable as the essential laws of humanity, and the consent of all the cotton consumers in the world, supposing, and the mere supposition is absurd, that it could ever be obtained, would be insufficient to fix the price at an invariable level.

In fact, it is only upon the principles which the PLOUGH, LOOM and ANVIL has been several years advocating that the objects proposed by the Convention can be arrived at. They must import the consumer and cease to export the staple, before they can exercise the slightest influence over prices. The enormous waste in the way of commissions, for sales and commissions, for guarantees, exchanges and freights between Southern and Northern ports, brokerages and reclamations, would all be saved by the spinning of cotton yarns and the weaving of cotton cloths in sight of the cotton-fields. To this object, therefore, should all he deliberations of our Southern friends be mediately directed. It will take time, and it will take tariff, to place the manufacturing interest on a remunerative footing. But all difficulties will give way to a concentrated and persevering effort; and in the mean time, a large measure of relief may be obtained by the establishment of direct commercial relations with the foreign market, the creation and employment of their own shipping, and a dispensation with the agency which New-York now enjoys in the transhipment of the staple. In this way, until they shall be enabled to retain within themselves the profits of conversion, they may at least save the profits of transportation, and be so far richer and stronger.

We point out the only course for relieving the planters' embarrasment Other means may be tried, but they can only consume time and money ill spared. To this they must come at last. Mills must be built, and ships launched, and eventually the Southern States of our Union will clothe the world without any thanks to Northern or British capital. Georgia is already leading the way in the right direction; and we are gratified that the cotton parliament has been convened at Macon, because the members will see in partial and incipient practice what we are urging as a wholesome general policy.

Our December number will contain a full account of the sayings and essayings, doings and things proposed to be done by the Convention.

THE POTATO.

SUCH of our readers as will refer to the March number of the current year will find a valuable letter from Senator Na ll on a method of cultivating the potato, by which it is supposed the rot may be avoided; but as possibly some of them may be like ourselves somewhat careless, and the paper (as is always the case with us) not at hand when most wanted, we will repeat as briefly as we can the substance of the Senator's communication.

The land was prepared as usual; laid off in rows two feet apart; manure put in the

furrows; the sets dropped and covered in the usual way, and the surface left level; machined straw was then applied, and carefully spread over the whole, to a depth of six or eight inches; crop planted early, to secure the advantage of spring rains. The ground beneath the straw continued mellow and moist throughout the prevalence of a prolonged drought; the yield was at the rate of 300 bushels per acre, and the tubers were of the very best quality, though the crops on the adjoining farms were nearly annihilated by the rot. Though we have a list of many thousand subscribers, we have as yet heard from but two who have made trial of Senator Naill's mode of cultivation —Messrs. Skinner and Sommers, of Prince George's county, Maryland. Of the quality of Mr. Skinner's crop we speak from personal observation—finer we never saw; and what struck us as a peculiarity, was their singular smoothness, being quite as much so as apples. Mr. Sommers laid his potato cuttings upon unploughed, unprepared ground, merely covering them with straw, and his crop, we are informed, was fully equal to Mr. Skinner's. Both gentlemen are convinced that they pursued the true method of cultivation, and intend to stick to it.

Are not these results confirmatory of Dr. Baldwin's theory? And do they not suggest the propriety, in some districts, of using the straw to shade the land, just as it comes from the machine, without carrying it to the compost-heap?

OUR CORRESPONDENTS.

A County Fair in Indiana, &c.— *Verité* writes from La Porte, Indiana, and discourses on this wise, in reference to agricultural showing at that place:—

"There was an exhibition of grain, vegetables, fruit, and horticultural productions, that would have done credit to any county in any State of the Union in which such products are grown. In confirmation of this I submit facts. One of our leading agriculturists attended the last great Fair held in Cincinnati one year ago, which was a *State* affair. He carried with him some of our best specimens, of his own raising, of apples and pears; for both he took first premiums. He says the exhibition in that city, taken as a whole, was inferior to that of La Porte. But further, this same gentleman attended the recently held Fair in your great State at Rochester, in the best region in the State for fruit, I believe. Much has been said in the *city papers* about the admirable exhibitions of the country; and we hope it was all *true*. But our friend who is a connoisseur in such matters, and whose name, were I to mention it, would be a guarantee of what I say, tells us that the exhibition in La Porte, of the articles of which I write, was *superior* to the Rochester exhibition. Be it remembered the country about Rochester was settled upwards of fifty years since, or before 1800. The La Porte region of country is a new settlement, in its *teens*. Another gentleman was present at the La Porte Fair, who had been present at the *Michigan* State Fair, held at Ann Arbor. He asserts of it that it was inferior to our Fair, in all *similar* articles exhibited. Methinks you are saying to yourself, while reading the above, *What boasting!* Sir, 'I speak what I know, and testify what I have heard.'

"This State of Indiana has formed a State Agricultural Society, to be held annually at Indianapolis. Every county in the State is called upon to form auxiliary county societies. The movement will, we trust, give a spur to improvements in agriculture and horticulture, as also to improvements in various kinds of stock; especially to the rearing of sheep. It is time our beautiful region of country was better known abroad. Its locality and other circumstances seem to have kept it out of sight heretofore; its millions of bushels of wheat and corn for the last three years have gone to New-York market under the name of Michigan, Illinois, and Chicago wheat and corn, and often in the shape of Rochester flour and meal. Those misnomers for Indiana grain must soon cease, and our own cognomen be adopted. The Buffalo and Mississippi railroad will be completed this present autumn, thus far, and then our La Porte wheat, corn, hogs, beef, merchandise, &c., will go from, and come to, La Porte *direct*. To make a trip then to the city of New-York and return, will be the business of ten days or less. We now have two fine hotels in the state of erection, for the comfortable accommodation of visitors who may wish to see our rich and beautiful country. This country, which was in the possession of the Indians twenty years ago, and which contains about four hundred square miles, has now a population of about fifteen thousand inhabitants. The town of La Porte contains about twenty-five hundred

inhabitants. The settlement of this country is worthy of notice; it has been entirely different from almost every other new country in its first class of settlers with which I am acquainted. Most new countries have been settled first by pioneers, who were ever on the move, and who were followed by permanent settlers, bringing with them Christianity and sociability. But La Porte region was in the first instance settled by an enterprising mass of settlers from almost every State in the then Union. You may readily suppose that such a class of settlers would bring all the means of making, not the wilderness, but the prairie landscape, 'bud and blossom as the rose.' It is true, as in every other part of our widely spread country, its population is restless; they would go to the end of the *world* to accumulate wealth; they have done so. From where was the Pacific shore settled? *Where?* But again, I must inform you a little more about the prosperity of our region. Every means have been used, as far as practicable, to introduce the best fruit in every variety to which the climate is suitable; and also all varieties of horticultural plants which are of utility, and which beautify the garden. Grapes are now in abundance, though the present year has been unfavorable to their growth; many seemed to have been checked in their growth when *half* grown. The varieties, as far as my knowledge goes, are the Catawba, the Isabella, and a white *foreign* grape. Small fruit, such as plums, cherries, &c., though in great abundance, have not come to perfection this year in great quantities. The cause is obvious: first, the cold, backward spring, and former part of summer; then the vermin that prey upon such fruit were numerous and very destructive.

"A great deal of fruit has been grafted and budded this season. You will perceive by the drift of my remarks, that every thing in our country looks to the future for improvement. Theory goes before practice. The Boston plough which took the premium at the great London Fair is by no means such a plough as would be of any use in the *prairie* country, where we plough eight or ten inches deep, with three or four horses, or two or three yoke of oxen. But McCormick's reaper, sometimes called the *Virginia* reaper, is most exactly suitable to cutting the large fields of wheat sown on the prairies, and which so soon grow *too* ripe, from a cause not well known. Our wheat and corn are both very good this season, though not so abundant a yield as last year. The *average* of wheat per acre will be about fifteen bushels; that of corn, about twenty-five; though some fields I have seen of wheat have yielded twenty-five bushels, and some of the corn, fifty. Corn is now selling briskly at thirty-five cents per bushel; the farmers are rapidly carrying their old corn to market. Without doubt our fruit, and many other things, such as poultry, prairie chickens, &c., will be taken by the owners to New-York market before many years pass. We have here in La Porte four different kinds of soil. First, the prairie land, which will be the most durable if properly cultivated. Its prominent qualities I have given you. The next best lands are burroak barrens, very rich. The third are beech and maple lands. The fourth, oak openings, a light soil, good for fruit. I may add another quality of soil which we have in our county: a large amount of marsh land. This will be at some future day a most valuable land, I believe."

Prairie Soil.—Our correspondent in Indiana favors us with the following analyses of the rich prairie loam, which forms the wealth of that rich agricultural State. Table I. represents the composition of the finer as separated from the coarser mould. Table II. the analysis of the coarser; and Table III. the result as combined. The unusual predominance of silica is noticeable:—

I.

1. Organic matter combined with water....	10.00
2. Silica,.....	76.00
3. Combined silica,.....	1.50
4. Alumina,.....	4.25
5. Oxide of iron,.....	4.25
6. Carbonate of lime,.....	1.50
7. Magnesia and other alkalies,.....	2.50
	100.00

II.

1. Organic matter and water combined,.....	8.00
2. Silica,.....	84.00
3. Magnesia and alkalies combined,.....	2.50
4. Alumina,.....	2.50
5. Oxide of iron, ...	3.00
6. Carbonate of lime,.....	1.00
	101.00

III.

Organic matter, &c.,.....	18.00
Silica,.....	160.00
Magnesia, &c.,.....	5.00
Oxide of iron,.....	7.25
Alumina,.....	6.75
Carbonate of lime,.....	2.50
Combined silica,.....	1.50
	201.00

East Bloomfield, N. Y.—R. S. T. furnishes us with a description of the animals exhibited at a Fair held in that village on the 24th of September, and adds many interesting remarks. He speaks in high terms of the cattle, of which there were about ninety head, mostly "grade cattle," a mixture of the Durham and Devon breeds, and all worthy of commendation. The Saxon and

Merino sheep were respectable in their classes, but grade sheep were the most numerous, showing plainly that the growing of mutton is considered an object in those parts. "Of the swine," he proceeds, "I am disposed to speak very highly indeed. I think the exhibition in this particular fully equal to the late State Fair, and better than at many county Fairs. They were uniformly white and of a very thrifty appearance. No taints of Razor Blade or Racer blood were discernible among them. I think there was a more marked improvement in hogs than in any other class of animals exhibited."

Tree Planting.—Mr. Jonathan Shearer, of Plymouth, Michigan, obliges us with some useful suggestions upon the "Setting out of Trees." He recommends that the hole destined to receive the tree be four feet in depth and in diameter, unless the soil be a stiff clay, when the diameter should be doubled; the bottom covered with rich loam, upon which the roots, previously immersed in water, are to be rested; the hole then to be filled in with the former earth, and the surface left nearly as possible level, so that the rain may properly filter through. Corn and potatoes are allowable in apple orchards; oats and clover forbidden. Grass will answer among peach trees of three or four years' growth. The roots of fruit-trees taken up in fall or spring should be carefully shielded from the frost.

Substitutes.—*Messrs. Editors:* I know not that the drought which prevailed in this section extended to the Northern States, but whether it did or not the remarks which I shall make will apply with equal force. Every farmer should raise corn enough for his own use without buying any, and then raise other things to feed his stock, and thereby save all the corn he can. If his crop of corn should fall short, as ours has done this season, he may, with good economy and the use of other things as substitutes, get along very well without buying.

The most valuable of these substitutes, according to my experience, is a good barley lot. No person who has never raised it can form any idea of its value. I think an acre of good land, highly manured and sowed in barley, worth $50 to any farmer. It should be sowed in this latitude as early as the first of September, and from the middle of November until the first of February, it may be grazed down occasionally; and from then until the middle of April it may be suffered to grow up and be cut down and fed to horses or other stock. There is one characteristic about it different from that of any other grain with which I am acquainted: horses may be fed on the green barley and worked every day, and it will not give them the scours as other grains do.

Rye is another profitable grain to raise for grazing and for cutting for horses in the spring, while in the milk. Horses are fond of it, and I believe it has a tendency to rid them of the bots.

It is best to sow rye in September, but it may be sown any time until the first of January. It will grow very well on land that will not grow barley; but it is not as strong food as barley, neither are horses so fond of it. Rye makes an elegant winter pasture for sheep when sown early, and they do well on it with a little dry food and salt.

Besides the two grains which I have mentioned, there are a variety of grains, roots, &c., which may be raised to great advantage, not only to winter stock on, but to feed them in summer.—William C. Dickson, *Milledgeville, Ga.*

Turnips—Late Harvesting.—Never take in your turnips till there is a prospect of the ground's freezing. As a general thing, the growth of this root proceeds far more rapidly in cold than in warm weather, and a light frost is by no means injurious. I have known this crop to remain out till the soil froze quite hard, and no injury resulted to the crop. If harvested before cold weather, the turnips become "corky" or spongy, and shrivel up, which induces an unpleasant flavor, and a tendency to decay. In this condition they are fit only for stock-feeding.

Braintree, Vt.—Mr. Lewis H. Spear sends us a very valuable essay on the culture of the Blackberry, which we shall carefully reserve until the proper season for matter of the kind. Mr. Spear is one of the proprietors of very valuable nurseries at Braintree. We are happy to be favored with his practical information.

Stock-Breeding.—When a minor I was told by an English herdsman how to get the best pair of oxen in the country. He said: "*Heifers* and *young mares* put to *old sires* are sure to have *male offspring*, to which they will impart the properties and color of their *sires*, whatever may be their own. If you can find an English bull, his size and points, color and temper will doubtless be superior. Engage the calves of two of the best heifers put to him; they will have all the valuable points of the imported sire and the stamina of the heifers added.' I was so interested in his statement that I determined to secure what I hoped would be a prize, and succeeded in buying the calves and raising, as he proposed, a yoke of oxen in all

respects exceeding my expectation—kind, quick, steady, tractable, handsome and enduring. My subsequent observation and experience have added something to my progress, from that starting point, in tracing the lines and laws of nature. I can now account for the interesting correspondence of Gen. Washington with English stock-breeders and agriculturists, his and their particularity in propagating stock, their very liberal expenditure in obtaining the *very best*, and their desire to extend and share the pleasure and profit of the enterprise with kindred spirits across the Atlantic.—Benjamin Willard, *Lancaster, Mass., Oct.* 14, 1851.

The Fly in Canada.—The inspectors of the *Beauharnois County Society* report, in reference to that district, that the crops of wheat, oats, peas, barley, and hay were about an average, while potatoes and Indian corn promised very indifferently. They observe, respecting the former grain: "In the course of our tour of inspection we observed that the general appearance of the crops promised an abundant yield, both of grain and straw, but that the early-sown wheat has been much injured by the fly, and we estimate the damage done by that insect will amount to about one fourth. On inquiry, we found that in all cases where the fly had been at work, the crop had been sown before the 20th May. Though we state the fact, we do not give it as our opinion, that farmers should make it a rule not to sow till after that time, as much seems to depend on the seasons, &c. However, the wheat sown between the 25th May and 7th June was free of fly, filling well, and promises to make fully an average return if the weather prove favorable for harvesting operations."

An Effectual Cure for Smutty Wheat.—Make a strong ley of oak-wood ashes, in which soak the wheat for twelve hours, stir it, and take off the smut balls that rise to the surface. Take the wheat from the ley, and sift powdered or pulverized lime over it, and mix it well with a shovel. Then sow it within one to four hours. Be careful not to put it in the same bags that the smutty wheat was taken from, nor to use the same shovel or any other thing that had come in contact with the wheat before it was soaked, and you will find a radical cure effected.—William Crispin, *Great Timber Creek, N. J.*

TOPICS OF THE PRESS.

Agriculture in Oregon.—A letter from Umpqua Valley, Oregon, published in the *New-York Courier*, says the climate is so mild in that quarter of the globe, that sleeping out doors is no hardship. Even in winter, the ground in the valleys never freezes, so that oats, potatoes and barley are sown in the fall. The wheat has the largest berry ever seen. Oats of a corresponding quality are raised *five years in succession from one sowing*, yielding at the rate of fifty bushels to the acre at each crop! Indian corn does not do so well, on account of the droughts in August and September; but potatoes, turnips, and other roots, in the moister locations, grow to a great size. No insects or weeds trouble the crops of any kind. Apples produce abundantly; and plums, crab-apples, raspberries, (a large yellow variety,) whortleberries, (a red species,) strawberries, and several other berries of fine flavor not known at home, are very abundant. Government gives to every actual settler on public lands in Oregon 640 acres in fee simple.

Novel Applications of Steam.—According to a paragraph in the London *Morning Chronicle*, the Marquis of Tweedale has at length succeeded in bringing to a great degree of perfection a steam plough, with which some interesting experiments have just been made. The general principle of action is as follows: A locomotive engine is stationed at each end of the field, and moved as the furrows are completed. The ploughs, having the Tweedale mould-board, are fixed on both side of a frame, (the upper being of course reversed,) which is turned over at the end of each set of furrows, for the purpose of performing the same operation on its return. The implement has been fairly tested at Yester, the seat of the Marquis in Haddingtonshire, and performed its work beautifully. On Saturday last one engine was in use as a primary trial, when the plough-frame was conveyed, on finishing each set of furrows, to the other end of the field, and the land ploughed at the rate of three and a half miles an hour. On Monday his lordship had two engines on the field, with the ploughs constantly at work between them. The operation of turning the frame at the end of the furrows is very perfect, and the success of the whole affair undoubted, the calculation of work done being at the rate of fifteen acres per diem.

The uses of steam are not confined to the cultivation of the grain. They not only grind it, but absolutely serve to relieve the baker of half his toils. A description of the process of baking by steam will not be found uninteresting. When the loaves are moulded, they are placed on carriages, and conveyed on railways into the ovens, which are made

of cast-iron, and placed one above the other. The doors being closed, the steam is then turned on from the boiler, and passing through a singularly formed coil of pipes, heated to a high degree in the furnace of remarkable construction, is, by opening the valves, admitted to the ovens. The baking process, from the time of running in the carriages to drawing them out again, occupies from half an hour to an hour and a half, according as the loaves vary in size. There are perforated pipes placed at equal distances inside the ovens, by which means all parts are alike heated. The heat is kept within determinate thermometric limits by the adjustment of the valves, and the degree ascertained by an indicator, the "bulb" being scarcely thicker than a cobweb, yet ranging from 120 to 800 Fahrenheit.

EXPERIMENTS IN WEIGHT OF LIME.—Mr. Henry Crist, in a communication in the *Ohio Cultivator*, states that he has "tested the comparative weight and measure of lime in its different forms, noting the quantity of water necessary to slake, the amount incorporated with the lime in slaking, also the quantity evaporated, &c. Result as follows: 1 bushel unburned limestone weighed 142 lbs.
1 " limestone fresh from kiln weighed . . . 75 "

Difference between burned and unburned, ... 67 lbs.

"This bushel burned lime required just 20 lbs. water, applied a few pounds at a time, in five successive days, to bring it into its most lively form, in which form it measured fully two bushels, good round measure, and weighed 93 lbs.: showing that out of the 20 lbs. of water applied to slake it, 18 lbs. were incorporated with the lime, and 2 lbs. evaporated. Increase in slaking, 24 per cent."

WOOL TRADE OF CHICAGO.—We learn from the *Chicago Tribune* that the amount of wool shipped from Chicago in 1849 and 1850 was as follows:—

1849, - - - -	520,205 lbs.
1850, - - -	913,862 "
Increase, - - -	396,657 lbs.

During the present year there had been received—

By railroad, up to Sept. 1st,	195,200 lbs.
By canal, to October 1st,	482,299 "
Other sources, (estimated,)	200,000 "
Total, - - -	877,499 lbs.

We incline to the opinion that the close of the year will show the receipts of 1851 to have been about 1,000,000 lbs. If we assume 25 cents as the average price per pound, (which is too little,) the total value of this year's crop in Northern Illinois is $250,000, exclusive of what has been manufactured in the State.

ONE OF THE ROOTS.—Mr. Emery F. Lincoln, of Alexander, dug up on his farm, and has now in his possession, a *clover root*, which is 3 feet and 10 inches in length. The root ran perpendicularly into the ground, and is three inches in circumference at the top.

PHOSPHATE OF LIME.—Mr. Joseph Harris, of Rochester, states in the *Genesee Farmer* that the mineral phosphate of lime used in England as manure contains 50 per cent. of phosphate, and is sold, when prepared for use with sulphuric acid, at $25 per ton. The phosphate of lime at Crown Point, in this State, contains, as we have before stated, according to the analyses of Professor Emmons and Professor Norton, from 80 to 90 per cent. of phosphate. This will afford a criterion of its value, compared with the English article. Mr. Harris states that he has seen the prepared phosphate applied to various crops. Its effects were greatest on turnips, often increasing that crop four-fold. Its effects on leguminous plants, clover, beans, &c., were beneficial; on wheat, but little benefit was derived. He suggests that it may prove of great use in tobacco culture.

LARD OIL.—There are said to be in Cincinnati forty manufactories of lard oil, which use 15,000,000 pounds of lard per annum. Of this, 5,120,000 pounds is converted into stearine, leaving 4,480,000 pounds, equal to 1,110,000 gallons of oil. The hogs of our Western States will soon come into strong competition with the whales of the Pacific Ocean.

FATTENING GEESE.—It is asserted, says the *Germantown Telegraph*, that the poulterers of Great Britain, and some other countries, are in the practice of mixing *gin* with the food of their geese, turkeys, hens, &c., in order to enlarge their livers, and cause them to take on fat. The same practice of fattening geese, with especial reference to the enlargement of the liver, is said also to obtain at Constantinople, where pies made of this viscus, in its swollen or intumescent state, are held in high esteem. It is also said to have been known to, and practised by the ancients, who, if we may credit the testimony of ancient authors, possessed the art in that perfection which enabled them, in a short period, to increase the size of the liver to an extent greater than that of the goose itself.—Martal. l. 13, essig. 58. This enlargement is attributed to feeding on fat and figs. —Horace, l. 2, Sat. 8. Juvenal presents these swollen livers before an epicure as a

great rarity.—Sat. 5, l. 114; and Perseus, Sat. 6, l. 71. Pliny also asserts that these enlarged livers were soaked in *mulled mill*, probably milk mingled with honey and wine, and informs us that "it is uncertain whether Scipio Metellus, of consular dignity, or M. Sestius, a Roman knight, was the great discoverer of this dish." M. Brydon asserts that the same art exists in Sicily. Is it not surprising that rational men should require such a dish as that afforded by this article? Enlarged goose livers, soaked in *mulled milk!* Scarcely less revolting would be the cannibal's meal than these diseased livers to a person of correct taste. Every person must be sensibly aware that the swelling or intumescence of the liver is nothing short of disease, whether in man or animals; the same is produced in swine by eating the sediment deposited by wine, and in man by the frequent and exorbitant ingurgitation of cider, wine, brandy and other stimulant beverages. In fattening geese, the allowing them a liberal supply of charcoal, keeping them as much as possible at rest and in the dark, with a daily feed of leniscent, finely crumbled and moistened with wine, will cause them to take on fat very rapidly, and without exposing them to disease, unless the treatment be too long continued. The flesh of geese fattened in this way is remarkably fine, tender and sweet.

Emigration to the West.—There is a heavy tide of emigration setting westward this season, particularly along the line of the National Road. The *Indianapolis Journal* says: "Emigrants are continually passing through here, bound westward, in great numbers. For the past three or four weeks the National Road has been thronged with them. We think it is reasonable to say that, on an average, three hundred wagons per week, or fifty each week day, have passed through for the last four weeks. At an average of four persons to each wagon, according to this estimate 4,800 persons have passed through in the last month. But we will say that 5,000, in round numbers, will have gone through this year, at the close of the season, and this we believe to be a reasonable calculation. If the emigration is as great in proportion on other thoroughfares, the accession to the population of the new States and Territories this year will be immense."

A New Cotton Plant.—The editor of the *Orleanian* has seen a boll of cotton, that deserves the attention of cultivators, on account of its rapid growth and early maturity. On the 1st of June last, a lady planted in her flower-garden a few cotton seeds presented her by a gentleman. On the 25th of July a boll was ready for picking, and at the end of sixty days from the time of planting the cotton had arrived at maturity; being in less than one half of the time it takes the species now raised by our planters to do so. The lady was totally unacquainted with the cultivation of the great Southern staple. The seed was introduced by Mr. Hyams, from Yucatan, and is styled the Alica.

Ground and Un-ground—Cooked and Un-cooked Food.—In a communication from the Society of *Shakers*, at *Lebanon*, New-York, in the *Patent Office Report*, we find the following upon the relative value of ground and unground, cooked and uncooked corn for feeding and fattening cattle, &c.:—

"The experience of more than 30 years leads us to estimate *ground corn* at one third higher than *un*-ground as food for cattle, and especially for fattening pork; hence it has been the practice of our society for more than a quarter of a century to grind all our provender.

"The same experience induces us to put a higher value upon cooked than upon raw meal; and for fattening animals, swine particularly, we consider 3 of cooked equal to 4 bushels of raw meal.

"Until within the last three or four years our society fattened annually for 30 years from 40,000 to 50,000 pounds of pork, exclusive of lard and offal fat; and it is the constant practice to cook the meal, for which purpose 6 or 7 potash kettles are used."

The Shakers are a close-observing, calculating people, and go in for the practical realities of life, and therefore, in the economy of food, must be presumed to be good judges. For ourself, we are disposed to believe the conclusions to which they have arrived are correct.

What Causes the Difference?—The *North British Agriculturist*, speaking in reference to the difference in the quality of the flesh of different breeds of animals, says: "As regards the black-faced Cheviot and South-Down breeds of sheep, the West Highland and Angus breeds of cattle, the flesh of these, if not more nutritious, is at least palatable. The short-horns, Herefords, and Devons, when fattened at a proper age, produce beef of excellent quality, but is often deficient in that finely-flavored taste which distinguishes such breeds as the West Highland. How much of this is owing to the nature of the breeds, or to the food upon which they are reared, are questions which we think have not received that attention from scientific men which the subject demands."

EDITORIAL AND SELECTED MISCELLANY.

THREE passages have been made from New-York to San Francisco within 100 days, viz.:—Ship Flying Cloud, 90 days; Surprise, 96; and Celestial, 100 days. . . . No less than 8,000 emigrants arrived in New-York during the last week in September. . . . THE notes of the new bank of Bridgeport, of which Mr. P. T. Barnum is a principal stockholder, have a portrait of himself on one end, and one of Jenny Lind on the other. . . . IN dentistry the United States surpassed all other countries at the great London Exhibition. . . . POWERS' statue of Eve has reached New-York. . . . OF the hundred and sixteen victims sent prisoners to Spain, fifty-one are ascertained to be of the age of 22 years and under, down to the age of 16; and of the whole number only eighteen are above the age of 30 years. . . . MRS. JUDSON (Fanny Forester) and her children have arrived in Boston, with health much improved by their voyage from India. . . . THE Mammoth Cave in Kentucky is now owned by the children of the late Gen. Jesup and the children of the late Col. Croghan, who received it as a bequest from a wealthy relative. . . . THE whole number of newspapers in Texas is thirty-five. . . . THE citizens of St. Louis and its vicinity have decided upon a loan of $100,000, in addition to the State loan of $250,000, for the purpose of assisting in the completion of the Pacific railroad. . . . THE present King of Prussia is publishing a complete edition of the works of Frederick the Great. Eighteen volumes have already seen the light. . . . THE *Scioto* (Ohio) *Gazette* notices a stalk of corn in the office, from the farm of G. W. Renick, which is seventeen feet high! . . . THE California editors recently held a convention at San Francisco for business purposes, and to cultivate good feeling among the various members. . . . AN old lady was telling her grand-children about some troubles in Scotland, in the course of which the chief of her clan was beheaded. "It was nae great thing of a head, to be sure," said the good lady, "but it was a sad loss to him." . . . THE coronets of a duke, marquis, and earl, have strawberry-leaves; a viscount has sixteen pearls, set close together on the rim; that of a baron, six, at equal distances—four only are seen in engravings. . . . THE bones of a mastodon have just been found in Green township, Sussex county, N. J. The tusk measures ten feet in length, and weighs 165 pounds. . . . THE Australian gold mines yield richly, and the inhabitants are described as mad with excitement. A blacksmith of Bathurst obtained 11 pounds of gold in one day. . . . THE most attentive man to his business we ever knew, was he who once wrote on his shop door, "Gone to bury my wife; return in half an hour." . . . THE census returns of South Carolina show that the slave population exceeds that of the free by 101,461. . . . MARSHALL PIERCE, of Putney, Vt., has sent to the editor of the *Springfield Republican*—so the letter says—an apple measuring fourteen inches in circumference, and weighing seventeen ounces. . . . MR. MARTIN FARQUHAR TUPPER, who recently visited the States, is, it is said, about to produce a history, or rather a sketch, of American writers. . . . To speak well is to sound like a cymbal, but to do well is to act like an angel. . . . THERE is only one paper published in Egypt proper, and belongs to the Pacha. All his officers are compelled to subscribe for it. . . . EUGENE SUE is engaged on a new novel, which he calls "Miss Mary." . . . ECHO is the shadow of sound. . . . THE quality least met with in gallantry is love. . . . THERE is merit without elevation, but there is no elevation without some merit. . . . HE that forecasts what may happen, shall never be surprised; 'tis too late to begin to arm when the enemy is in our quarters. . . . A GOOD character is like capital in business or stock in trade. . . . GOV. LEVI LINCOLN exhibited twenty-eight varieties of pears at the Worcester (Mass.) Horticultural Exhibition. . . . IF you will have a constant vigorous health, a perpetual spring of youth, use temperance. . . . OUR waggish friend of the *Providence Journal* says:—'We have heard of the case of an adventurous rattlesnake which bit an old toper whose

skin had been full of liquor for many years. The man was not hurt, but the snake died." . . . TRUTH is a divine blossom upon an earthly root. . . . To philosophize is to recollect ourselves on all sides. . . . PERFECT confidence between parent and child is a seven-fold shield against temptation. . . . IF you harbor malice against any human being, you cherish a worm in your heart, that in time will eat out all its goodness. . . . AN hour's industry will do more to beget cheerfulness, suppress evil humors, and retrieve your affairs, than a month's moaning. . . . "THE difference between a bankrupt and a watch," said B., "is, that the former 'goes,' and is 'wound up;' while the latter is 'wound up' before it goes!" . . . A BASHFUL young lady intimates that when she gets married she means to take chloroform. . . . THE difference between a post-office stamp and a donkey is, that you stick one with a lick, and lick the other with a stick. . . . IF the sun is going down, look at the stars; if the earth is dark, keep your eye on heaven. With God's presence a man or child may be cheerful. . . . DISINTERESTEDNESS is the soul of virtue. . . . SINCE Time, says Goethe, is not a person we can overtake when he is past, let us honor him with mirth and cheerfulness of heart while he is passing. . . . IT is thought that the Cuban prisoners after being sent to Spain, will be liberated. . . . THE folly of one man is the fortune of another. . . . CHEERFULNESS throws daylight upon the path of life. . . . A WAG has truly said, if some men could come out of their coffins and read inscriptions on their tomb-stones, they would think they had got into the wrong grave. . . . FOOLS are ruled by humor. . . . FORTUNE often makes a fast and then takes away the appetite. . . . ACCORDING to a census taken by themselves, there are 18,000 Mormons at the settlement on Salt Lake. . . . THE flying-machine, in process of building in New-York, is said to be "very simple." So will those be who attempt to travel in it. . . . THE Chinese have records of a great starvation which took place about the time when Joseph was prime minister of Egypt. . . . A PORCELAIN manufactory is about to be established in Stockton, California, by the Chinese. The feld-spar of which this beautiful ware is made, is found in large masses in the San Joaquin valley. . . . THE official census returns of South Carolina give as the total free population of the State, 283,523; slaves, 384,984. . . . THE submarine telegraph between England and France has been successfully completed. . . . A FARMER in Caroline county, Va., states that one acre of his land has produced 56 bushels of wheat, each bushel weighing, when thoroughly cleaned, 61 pounds. . . . THE length of the Virginia railroads completed is 565 miles, and 890 miles are now being built, which, when finished, will considerably extend the resources of that State. . . . THE tobacco crop in Ohio, says the *Cincinnati Commercial*, is larger and finer this than at any previous season. The State is fast rivalling Kentucky and Missouri in this great staple. . . . A VESSEL arrived at London from New-York had 1,400 firkins of butter as a portion of her cargo, the produce of the United States of America. . . . IT is an extraordinary fact, stated on authority, that there is at the present time more of an Irish population in the United States of America than there is in Ireland itself. . . . AT the Worcester county fair, five premiums were awarded to ladies for best specimens of domestic bread. . . . THE great Michigan railroad conspiracy trial has resulted in the conviction of twelve of the prisoners. . . . AT the late Kentucky State Fair a pumpkin was on exhibition weighing 133 pounds, and measuring 6 feet 9½ inches in circumference. . . . SURGEON KANE brought home in the Advance a bottle of red snow water from the Arctic region. Red snow is a fungus growing on white snow. . . . A LETTER from Vienna announces that a grand industrial exhibition is to take place in that city next year, on the plan of the one in England. . . . IN the way of telegraph lines Michigan alone has now already more miles completed than has the whole of England. . . . ATTEND to the construction and repair of fences, so that what is made through the toils and anxious cares of the husbandman, may not be lost through his neglect to protect his crops from the depredations of stock. . . . THE Royal Mail

Steam Packet Company is having constructed five gigantic steamers to run between Southampton and the Isthmus of Panama. . . . NEVER betray confidence of any kind, but more particularly that of a woman. . . . THE number of persons who have visited Niagara Falls this season has been from 90,000 to 100,000. . . . MR. HANSON ROBERTS, of Dover Neck, N. Y., has raised on his farm the present year fifty-seven bushels of winter rye from one bushel of seed sown. . . . MR. C. WENTWORTH DILKE, the editor and proprietor of the *London Athenæum*, has been offered the honors of knighthood, in consequence of his services in respect of the Crystal Palace. . . . GOOD sense is invariably found connected with good nature. . . . THE body of Wilson, one of the Minot's light keepers, was found by Mr. Bennett last month, near the wreck of the light-house. Very little flesh was found upon the remains, but sufficient clothing was attached to identify the body. . . . THE Government of Canada removed from Toronto to Quebec on the first of October. . . . JOHN BANVARD, who made a fortune and fame by his panorama of the Mississippi, has returned to America, after a residence of three years in Europe. . . . ANOTHER son of Victor Hugo has been condemned to nine months' imprisonment, and fined 2,000 francs, for an article on the expulsion of foreigners from France. . . . THE bones of Stephen Girard were ceremoniously transported on the 30th September to the grand sarcophagus within the College. . . . THE first medical degrees conferred in America were by King's College, New-York, in 1769. The first medical work was "A Brief Guide on Small Pox and Measles," by Thomas Thatcher, of Massachusetts, published 1677. . . . A VERDICT of $10,000 has been given to a young lady in Henry county, Ky., in an action of slander against her lover. . . . IN the city of Hartford the water-works are to go into operation next spring. The work is progressing with all convenient dispatch. . . . FIVE hundred police officers were on duty in Boston during the railroad jubilee. . . . "Is not that a beautiful shell?" asked a lady, fishing to show her science. "Indade, madam, an' it is," replied an Irishman; "but I am no botanist, and do not understand physiology." . . . FOR a week after Father Mathew's visit to Troy no case of drunkenness was before the police court. . . . THE *St. Louis Union* says that the Pacific railroad has been suspended, in consequence of a controversy with some of the landholders on the route about the price they shall receive for their lands. . . . A NEW system of posting the names of streets has been patented in London, and is on trial by the authorities. The name is blown or stamped in the glass on the street lamps, and is thus seen equally as well by night as by day. . . . THE *Eastport* (Me.) *Sentinel*, of the 30th ult., says:—"The copious rains of Tuesday and Saturday nights, and Sunday last, have entirely quenched the disastrous fires that were raging about us. . . . THE hope of happiness is often the truest happiness we can possess; the purest joy is never so pure as its desire. . . . DANIEL DEFOE, author of 210 books and pamphlets, died insolvent. . . . FIFTY persons are digging for gold at Stratford, Conn., in the expectation of finding from $7,000,000 to $10,000,000, said to have been buried there by a Spanish captain. . . . JOSEPH S. CABOT, Esq., of Salem, has been chosen President of the Massachusetts Horticultural Society. . . . BOOKS were bound in oak boards until the fourteenth century. . . . FOUR thousand tons will this year be added to the mercantile marine of Charleston. . . . A POSTMASTER'S clerk says, that if the people will affix their stamps to the right hand upper corner of their letters, they will greatly facilitate his labors in stamping and cancelling stamps preparatory to mailing said letters; and he will be their greatly obliged servant. . . . DURING one week there arrived in New-York 11,094 emigrants; of these 7,850 were from British ports. . . . THE new Government buildings (Post-Office and Custom-House) at Cincinnati are to be commenced immediately. . . . THE Providence Athenæum now contains 16,602 volumes, of which 691 have been added during the past year. . . . THE oldest pyramids are the most perfect works of art. . . . IN Berlin the Government is making an effort to place duelling out of fashion, and lately compelled the survivor in an affair of honor to be present at the *post mortem* examination of his victim and watch the proceedings.